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Pygmalion in Physical Education: Effects of Teacher Classroom Expectations on Teacher Behaviors in the Gym

by

Nurit Reshef

A Thesis
Submitted to the Faculty of Graduate Studies and
Research in Partial Fulfilment of
The Requirements for the Degree of
Master of Arts

Department of Physical Education and Sport Studies

Edmonton, Alberta

Spring, 1987

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled "PYGMALION IN PHYSICAL EDUCATION: EFFECTS OF TEACHER CLASSROOM EXPECTATIONS ON TEACHER BEHAVIORS IN THE GYM" submitted by NURIT RESHEF in partial fulfilment of the requirements for the degree of Master of Physical Education.

Supervisor

Date April 9/87

ABSTRACT

The purpose of the study was two-fold. The major purpose was to highlight and analyze the relationships between the way the teacher perceives his students in the academy and the way he reinforces the students in physical education classes. A secondary purpose was to understand the effect of an explanatory variable, namely, student's sex, on the way the teacher perceives his students as either high or low expectancy.

One teacher, who teaches both academic subjects as well as physical education, volunteered to participate in the study. Approximately 10 hours of interaction data was collected in physical education and in other lessons, over a period of six weeks. The Dayadic Adaptation of CAFIAS (which was developed by Marlinek, 1977) was used to record and analyze the interaction concomitantly, interviews were conducted with each student and with the teacher. The teacher was requested to rank students in order of expected achievement.

The study required four stages of analysis. At the first stage, a qualitative approach was used to describe the subjects' world view. At the second stage relationships between teacher expectations in the academy and teacher-pupil interaction in physical education were investigated. At the third stage teacher-pupil interactions

in the academy and several correlations were discussed. At the last stage of the analysis, relationships between student gender and differential teacher behavior were studied.

Within the scope of the sample all the conclusions were based on trends in data. Findings indicated that two variables were susceptible to an expectation effect. There were positive and negative reinforcements given by the teacher. It was found that most of the positive reinforcements were addressed to high expectancy student while very few were given to low expecting students. The findings also indicated that very few negative reinforcements were given to high expectancy students.

In addition, the data revealed differential teacher sport expectations for boys and for girls. Boys were expected to do much better in sports than girls. However, there was little evidence that the teacher behaved differently toward them on the basis of these expectations.

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A number of people have contributed to the completion of this work. I would like to acknowledge my indebtedness to them.

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I acknowledge with gratitude the cooperation of the teacher who participated in the research. Unfortunately in a study of this nature the identity of my subjects cannot be released. However, to the teacher and his students go my deepest appreciation for the freedom they so openly provided. Lois Bolt deserves special thanks for typing this manuscript.

Finally and most important to my husband Yonatan for his support, patience and love over the study period. With his understanding and help I managed to complete this worthwhile task.

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Chapter 1

Statement of The Problem

A. Introduction - Purpose of the Study

The Pygmalion Effect--the enhanced learning performance by students of whom teachers expect more--has been studied extensively for over a decade. The purpose of this study is to determine the extent to which the Pygmalion Effect operates in the physical education setting. It is hypothesized here that the Pygmalion Effect exists in schools where the same teacher teaches academic subjects as well as physical education class. More specifically, teachers form expectations of their students from perceptions gained through academic subjects. Those expectations ultimately affect the interaction between the teacher and students during physical education session.

The objectives of this study are, first, to analyze the relationship between the way teachers perceive their students in academic subjects and the way they reinforce their students in physical education classes. The second objective of the study is to understand the effects of a few explanatory variables (e.g., sex, race) on the way teachers perceive their students as either low or high expectancy.

B. The Meaning of the Pygmalion Effect

Rosenthal (1966) conducted a series of studies which indicated that one person's expectation of another's behavior may serve as a "self fulfilling" prophecy. Within a laboratory situation, he has demonstrated that the expectancies of the behavioral scientist can significantly influence the outcome of experiments.

Within a naturalistic setting, Rosenthal and his collaborators (Conn, Edwards, Rosenthal & Crowne, 1968; Rosenthal & Jacobson 1968) have demonstrated a marked expectancy effect with teachers. Rosenthal and Jacobson (1968), in their publication Pygmalion in the classroom, claimed that when teachers are given the expectation that a group of school children in their class are "intellectual bloomers who will show unusual intellectual gains during the academic year", these children often show significant intellectual gains as compared to the remainder of the children in the class. In actuality, there was no reason to believe that these children would show above average growth. Hence, if the children showed gains, it would only be because the teacher believes they would do so.

Achievement information at the end of school provided some evidence that children described as bloomers did do better than comparable students not described as bloomers. However, the above results were relevant mostly to the first two grades and there remain serious questions about the

interpretability of the achievement test at these grade levels. As a result, there has been considerable controversy over the data that Rosenthal and Jacobson presented (Thorndike, 1968; Snow, 1969; Clairborn, 1969).

Rosenthal and Jacobson explained their results in terms of the self-fulfilling prophecy effects of teacher expectations, that is because teachers felt that these special children could made exceptional progress, they treated them in ways that stimulated and encouraged achievement. In other words, Rosenthal and Jacobson argued that the Pygmalion Effect is based on two core arguments: (a) that teachers may treat their children in more pleasant, friendly and encouraging fashion when they expect greater achievement of them, and (b) that such a behavior improves the performance of those children.

Brophy and Good (1970) argue that Rosenthal and Jacobson's work (1968) remains only a demonstration of the existence of expectancy effects because their study did not address the events intervening between the inducement of teacher expectations and the administration of the criterion achievement test. Brophy and Good tried to focus on the intervening processes and they conceptualized the Pygmalion phenomena as: "Outcomes of observable sequence of behaviors" (p. 365). They suggested a model which may be described as follows: (a) The teacher forms differential expectations for student performance; (b) He then begins to treat children differently in accordance with his

differential expectations; (c) The children respond differentially to the teacher because they are being treated differently by him; (d) In responding to the teacher, each child tends to exhibit behavior which complements and reinforces the teacher's particular expectations for him; (e) As a result, the general academic performance of some children will be enhanced while that of others will be depressed, with changes being in the direction of teacher expectations; (f) These effects will show up in the achievement tests given at the end of the year, providing support for the "self-fulfilling prophecy" notion.

In order to investigate systematically the full model from beginning (how do teachers form differential expectations in the first place?) to end (how do children change so as to begin to confirm more closely to teacher's expectations?), a series of interrelated studies are required. However, the present study deals with the second step only: given differential teacher expectations, how are they communicated to the children in ways that would tend to cause the children to produce reciprocal behavior?

C. Definitions of Terms

Self-fulfilling prophecy. The self-fulfilling prophecy refers to the phenomenon in which one person's expectations for another's behavior can come to serve as a partial determinant of that behavior (Aitkens, 1974)

Pygmalion Effect. The Pygmalion Effect is a synonymous term for the self-fulfillilng prophecy. (Rosenthal, 1968)

Social Reinforcers. Social reinforcers are forms of social rewards and punishments that are given either verbally or nonverbally to an individual by at least one present other (Roberts, Allison, Greendorfer, Spink and, Koehler, 1979).

Positive Reinforcement. Positive reinforcement is a praise for performance, e.g., a smile, a compliment, a pat on the back.

Negative Reinforcement. Negative reinforcement is a direct criticism for performance, e.g., a scowl, a sarcastic comment, or rejection of behavior, feelings or ideas of participants.

D. Justification of The Study

During the past decade, a considerable amount of research has been conducted in the academic classroom for the purpose of identifying the teaching behaviors that are most conductive to children's academic achievement. The study of teacher expectancies was of interest because of its apparent implications for educational practice. For example, it has been found that teachers vary their behaviors toward high and low achieving students. They do

it in a variety of ways; paying less attention to lows in academic situations, waiting less time for lows to answer questions, praising lows less frequently than highs, and so on (Good 1981). To prevent this phenomenon, these and other communication patterns towards high and low achieving students could be presented to teachers along with procedures that teachers can use to communicate more appropriate expectations.

Traditionally, research and theory dealing with the Pygmalion Effect have been examined within the context of classroom achievement and only rarely within physical education contexts. Also, during the past decade, youth sport has been rapidly increasing in popularity all over the world, and the interaction between coach and child have captured the interest of several investigators. However, almost no attention has been given to how coaches interactions, may be biased by their perceptions of children's abilities. Hence, the necessity for more studies which will try to determine the extent to which the Pygmalion Effect operates in a youth sport setting and in the physical education context. This study is an attempt to partially fill this lacuna.

This study differs from the existing body of research in two respects: (a) The methodology and (b) The predicted source of teachers' expectations. More specifically, it is a well known phenomenon that in many elementary schools the same teacher teaches academic subjects (mathematics, history

and so on), as well as physical education. There are some problems derived from this situation. First, most of the teachers do not have the skills and the knowledge to teach physical education. Worse yet, they are not able to teach the children fundamental movements in a developmental approach. Second, it might be that teachers are not aware of the fact that during physical education classes they tend to reinforce more those students of whom they hold higher expectations in regular classes. Moreover, it might be that they pay less attention to lows and interact with them less frequently. By that they provide unequal opportunity for students to excel in physical education studies. The major justification for this study, therefore, lies in its attempt to investigate a different source of teachers' expectations, which has not been investigated before.

E. Limitations and Delimitations

Delimitations

The major problem of the current study is that the sample is not a random one. Moreover, the sample consist of one teacher only and his students who are between the ages of nine and ten, hence, this study should be viewed as a case study. The sample does not permit generalization of findings beyond the teacher used in the study.

Second, the research coded the behaviors during the physical education class by using a video-tape, therefore, there was a possibility for an interaction between the subjects behavior and the research tool. Consequently, the subjects' behavior might have not been natural. Also, by using the video-tape, various behavioral subjects appeared harder to perceive by the observer. For example, it was difficult to hear in some cases the conversation between the teacher and the students.

Finally, the observations were not spaced over a large portion of the school year, therefore, the findings would reflect this.

Limitations

There are more variables involved in classroom expectancy phenomena as it is currently conceptualized. Therefore, it is always possible that unobserved variables are responsible for the results by using the chosen independent variables. For example, students come to instruction with certain aptitudes for learning and they usually differ from one another in these aptitudes. Measures of such students differences often predict learning outcome to a substantial extent regardless of the teachers teaching methods or topics studied.

Second, teachers also differ in many characteristics relevant to teaching and to expectancies. Personality

differences, and related aptitudes and attitudes may affect not only classroom teaching behaviors but also the degree to which attention is paid to student characteristics. Teachers differ in their use of information on prior student achievement and also in social skills.

There are more potential limitations to the ranking method of measuring teacher expectations and selecting expectations groups. The procedure forces students into an ordinal scale, whereas teachers may perceive student as being grouped in a few categories.

F. Summary

This chapter has presented the problem central to the study. It has explained the meaning of the Pygmalion Effect and suggested a general model. It also defined terms used in the study and indicated its contribution to the existing body of literature. The major limitations and delimitations of the study have been discussed. Chapter 2 reviews the literature pertinent to the study.

Chapter 2

Review of the Literature

A. Pygmalion Effect in the Classroom:

Rosenthal and Fode (1963) first demonstrated the impact of interpersonal expectation in a social setting. In their experiment students served as experimenters. They were presented with a series of photographs of human faces and asked to rate the degree of success or failure present. All experimenters were given identical instructions to read and all were told that the study involved replicating well-established results. However, half were told that they may expect that the photographs would be rated successful while the other half were led to expect unsuccessful rating. Results showed that experimenters expecting successful rating obtained more successful ratings than experimenters expecting failure.

The impact of interpersonal expectations was soon evaluated in other research settings. Studies involving reaction times, psychophysical judgement, and animal learning among others were carried out (Rosenthal 1969). In each case, the existence of expectation effects was documented. Researchers were not content to restrict the study of expectation effects to the laboratory nor to the study of experimental artifacts. Indeed the area which has

received the most public attention has been the influence of performance expectations on school achievement.

Active interest in teacher performance expectations was stimulated by the claims of Clark (1963). Clark argued that some ghetto children might be the victims of low teacher expectations which became self-fulfilling prophecies. The fact that ghetto teachers believe their students could not excel in studies was verified.

The most widely cited and controversial of supporting study is Rosenthal and Jacobson's Pygmalion in the classroom (1968). The Pygmalion's findings did not gain immediate public or scientific acceptance. In fact, the Pygmalion study was strongly criticized on methodological grounds (Elashoff & Snow 1971; Jensen 1969).

Subsequent research by several investigators reported findings that support the self-fulfilling prophecy hypothesis. In contrast, several investigators failed to find support (Claiborn 1969; Goldsmith & Fry 1971) and controversy resulted. However, Brophy and Good (1974) extensively reviewed 60 studies, directly concerned with the question of teacher expectancy effects, and concluded that work by a large number of investigators using a variety of methods over the past several years has definitely established that teacher expectations can and do function as self-fulfilling prophecies.

A clear understanding of Pygmalion Effect cannot be obtained without treating the following mediating questions;

first, how may performance expectations be communicated in the classroom? and second, how can these communications influence the students' performance?

From Different Expectations to Different Treatment

Much research has been conducted in order to answer the first question. Rosenthal (1974) provided a useful typology for summarizing behaviors found associated with teacher expectations. The typology contains four factors: climate, output, verbal input and feedback.

a. **Climate**: Teachers appear to create a warmer socioemotional atmosphere for brighter students. There are many nonverbal behaviors associated with positive emotional attraction which are displayed by teachers most frequently in interactions with students believed to be bright. For example, Chaikin, Sigler and Derlega (1974) found that teachers who believed they were interacting with bright students smiled and nodded their heads more often than teachers interacting with low students. Also teachers leaned towards brights and looked in their eyes more frequently. Page (1971) found that high expectations led to more smiling, and Kester and Letchworth (1972) reported that classroom observers found teachers more supportive and friendly towards bright students.

b. **Verbal Output**: According to Cooper (1979) verbal output can be defined as the frequency with which academic

interactions take place and the teacher's persistence in pursuing interactions to a satisfactory conclusion. Brophy & Good (1970b) found that teachers tend to stay with highs longer after they have failed to answer a question. This persistence following failure takes the form of voice clue given, voice repetition, and more rephrasing when highs answer a question incorrectly than when lows answer incorrectly. Also, Rowe (1974) found that teachers allowed bright students longer to respond before redirecting unanswered questions to other class members.

Brophy and Good (1974) reviewed studies in which the frequency of teacher-student academic interactions was assessed. Of these studies, 13 have reported that teachers more often engage in academic contact with high than with low expectation students. Strongly supported by these studies is the finding that high expectation students will seek more academic contacts with the teachers than low expectation students. What does vary is whether teachers equalize or accentuate these differences through their own initiation.

It has been found that while expectations often influence teachers' initiation of contacts, the direction this influence takes follows no general pattern. Some studies report that teachers initiate more contacts with highs (Good 1970; Kester & Letchworth 1972), others report that teachers initiate more interactions with lows (Evertson et al. 1973), while some studies indicate no initiation

differences at all (Claiborn 1969). The reason for the contradictory findings may be a function of teaching strategy differences.

In summary, teachers often show more willingness to pursue an answer with highs than with lows. Furthermore, it has been found that highs create more output opportunities for themselves; they will seek more academic contact with the teachers than low expectation students. However, teachers vary in whether they equalize or accentuate contact frequency differences.

c. **Verbal Input**: There is evidence indicating that teachers' verbal input to students is dependent on performance expectations. Students labelled as low expectation have been found to receive fewer opportunities to learn new material and have less difficult material taught to them than students labelled as bright (Cornbleth, Daris & Button 1974; Jeter 1975).

d. **Feedback**: This factor involves the teacher's use of praise and criticism after an academic exchange. Brophy and Good (1974) found that teachers tend to praise bright-expectation students more and proportionally more per current response, while lows are criticized more and proportionately more per incorrect response. The conclusion seems to hold whether one simply counts positive and negative use of affect or whether one adjusts praise and criticism use by the number of correct and incorrect responses. Evidence since Brophy and Good (1974) has

remained consistent with this conclusion (e.g. Cooper & Baron 1977; Firestone & Brody 1975).

Dusek (1985) listed 17 mechanisms through which teachers might minimize the learning progress of lows. The list was originally compiled on the basis of research published through 1973. Some of these findings indicate that teachers are:

a. Criticizing lows more often for failure (Brophy & Good 1970b; Cooper & Baron 1977; Good, Cooper & Blakey 1980; Good, Sikes & Brophy 1973; Jones 1971; Medinnus & Unruh 1971; Rowe 1974; Smith & Luginbuhl 1976).

b. Praising lows less frequently than highs for success (Babad, Inbar & Rosenthal 1982; Brophy & Good 1970b; Cooper & Baron 1977; Firestone & Brody 1975; Good, Copper & Blakey 1980; Good, Sikes & Brophy 1973; Martinek & Johnson 1979; Medinnus & Unruh 1971; Rejeski, Darracat & Hutslar 1979; Spector 1973).

c. Paying less attention to lows or interacting with them less frequently. (Adams & Cohen 1974; Blakey 1970; Given 1974; Kester & Letchworth 1972; Page 1971; Rist 1970; Rubovits & Maehr 1971).

d. Calling on lows less often to respond to questions (Davis & Levine 1970; Mendoza, Good & Brophy 1972; Rubovits & Maehr 1971).

e. Less friendly interaction with lows including less smiling and other nonverbal indicters of support (Babad, Inbar & Rosenthal 1982; Chaikin, Sigler & Derlega 1971; Kester & Letchworth 1972; Meichenbaun Bowers & Ross 1969; Page 1971; Smith & Luginbuhl 1976).

f. Briefer and less informative feedback to the questions of lows (Cooper 1979; Cornbleth, Davis & Button 1972).

From Different Treatment to Different Performance

For each of the four factors (climate, input, output, and feedback), enough evidence exists to conclude that teachers' behaviors are associated with teacher's expectations. The question is: how do these communications influence the student's performance?

For certain behavioral differences the relation to performance seems fairly straightforward. Thus, students who are taught less difficult material and who are presented with less novel instruction should eventually show corresponding weak performance. For other treatment differences, specifically the reported greater teacher persistence when interacting with highs, the relation to performance seems clear. A student given less time to respond will less often answer correctly. As a result, low

expectation students may not get as great an opportunity to integrate and vocalize their thoughts.

According to Cooper (1979), the differences in socioemotional climate, and in student initiations and feedback seem wholly undesirable. However, he argues that beyond evidencing a general pattern of inhibition of slow student participation, their links to performance differences per se are not immediately clear. Meyer (1985) concludes that up to this point studies suggest that teachers' expectancies exist and that they are quite accurate. However, the effect of teachers' expectancies on students are less clear but surely they occur, although not with the frequency of intensity that was suggested by earlier investigators. He explains that the reasons for being unable to get a good understanding of expectancy effects involve the inadequacy of research designs and methods; problems in confidently determining causal links and directions; theoretical deficiencies that do not allow the use of more sophisticated research designs and analytic methods; and an overly narrow philosophical view about the nature of human behavior and development.

There are two types of studies on teachers' expectancy effect: (1) experimental studies, (2) naturalistic studies. The experimental studies have been strongly criticized for lacking external validity. Dusek (1975) concluded that they should be called "biasing effects". He argued that teachers had no information on which to determine their behavior so

that the incorrect information given to them had to serve as a basis for behaving towards the subjects (in this case, poor students were described as late bloomers). The effect of this manipulation has been mixed and does not provide strong support for teacher expectancy effects.

The naturalistic studies have been much more productive although they involve some causal direction problems (Snow 1969). Also, Borphy (1985) argues that several qualifications and complications must be kept in mind in drawing implications from the conclusion that teachers' expectations for student achievement may function as self-fulfilling prophecies. First, although the forms of differential treatment have been documented they do not occur in all teachers' classrooms. Teachers differ considerably in the degree to which they use their expectations as guides to instructing the students. According to Brophy and Good (1974) there are three different kinds of teachers:

a. Proactive teachers who are guided by their own beliefs about what is appropriate. If they are experienced and skilled enough to set realistic goals, they are likely to guide students systematically towards fulfilling the expectations associated with these goals.

b. Overactive teachers who develop rigid expectations and treat their students as stereotypes rather

than individuals (this is almost certain to lead to undesirable ~~expectation~~ effect on low achievers).

c. Reactive teachers, who are those in between the above mentioned types. These teachers hold their expectations more lightly, adjusting them in response to new feedback and emerging trends.

Second, most teacher expectation effects are mediated not only by teacher behavior but by student reaction to that behavior. Students differ in their susceptibility to being conditioned by teacher's expectations. Third, other potential factors to predict how teachers will treat students are: teacher's personal characteristics (general intelligence, cognitive complexity, habits of control, sense of efficacy, etc.); teachers' beliefs about teaching and learning (such as teachers' role beliefs about what constitute the central function of the teachers role), or their beliefs about student socialization.

Finally, some forms of differential treatment are appropriate. We cannot assume that all differential patterns represent inappropriate favoritism of highs or bias against lows. These must be much more research effort aimed at identifying linkages between teachers' behaviors and student learning before researchers will be able to interpret differential patterns of teacher-student interaction unambiguously.

B. Sex Role Expectations

Good & Findley (1985) argue that there seem to be indications that teachers' sex-related beliefs about children may influence teachers' classroom behavior. However, the research on sex-differentiated expectation is somewhat sparse, therefore, the precise nature of these variations is unclear. In general, the sharpest differences in the behavior of teachers towards boys and girls have been found in the preschool literature. For example Biber, Miller and Dwyer (1972), Fagot and Patterson (1969), and Yarrow, Waxler and Scott (1971) have all provided evidence that boys appear to be the target of discrimination in preschools (e.g. they receive less supportive teaching). However, when variations in children's behavior are taken into account a different picture of cause and effect appears. For example, Brophy and Good (1974) argued that student sex difference are due to student difference in salience, with boys being more salient and therefore more likely to receive teachers' attention and response to either positive or negative behaviors.

Although individual studies suggest that classroom interaction varies for individual students in particular setting, data from many different studies show certain common sex differences in classroom interaction pattern. The primary difference is quantitative: Boys tend to have more interactions of all kinds with their teachers than

girls. This difference especially exists for interactions involving behavioral criticism and control of misbehavior. Boys are much more often warned or criticized for misbehavior than girls. However, the data of several studies show clearly that this finding is not attributable to discrimination against boys. Thus, this treatment difference is due to the more frequent breaking of classroom rules by boys.

Brophy and Good (1974) found that boys had more interactions of all kinds with teachers than girls and received more teacher criticism. However, the study showed that most of the teacher's criticism was directed toward the boys in the low expectation groups. Also, low achievement girls, relative to other students, were exposed to more adversive and less stimulating contact with teachers. The explanation of the above findings is that boys are more active and probably more forceful in asserting themselves and gaining their teacher's attention.

Recent classroom data on teacher-student interaction are consistent with these trends. Brophy and Evertson (1981) found significant sex differences for 22 of the 73 variables measured. In general, they found that: (a) Boys had higher rates of total contacts with teachers than girls, mostly because they had more behavioral contacts; (b) girls had higher percentages of contacts that were private and non-academic; (c) girls were more interested in pleasing the teachers than boys; (d) measures of teacher praise and

criticism showed no sex differences for praise but greater frequency of criticism of boys. They conclude that, "all in all the sex differences data reinforce and extend the pattern observed in earlier research: teachers perceive girls more positively than boys and show more positive patterns of interaction with them; but most, if not all, of these differences are attributable to differences in the behavior of the students themselves and not to significant teacher favoritism of girls or rejection of boys" (p. 118).

C. Social Class, Race and Teacher Expectations

It has been demonstrated that teacher expectations influence student performance. Three student characteristics that may influence teacher expectations are gender, social class, and racial group. Clark (1963) suggested that social class and race stereotype might be influential in teacher expectations. Rist (1970, 1973) reported that the expectations of the child's initial teachers (kindergarten teachers), resulted in the child remaining in the same expectancy group in grades one and two. Once grouped by the kindergarten teacher, the child had little chance of moving up to a higher expectancy group.

Some other research (Friedman 1976; Weinstein & Middlestadt 1979) leads to the conclusion that teachers treat students differently as a function of social class.

Teachers may give more and higher quality interaction to middle than to lower class students.

These studies support the contention that teachers use social class information to form expectancies. As a result, the nature of teacher-student interaction, which differs for students as a function of the level of teachers' expectancy, differs for students in the various classes, for example; Rist (1970) found that children in low-expectancy group often were placed in a disadvantageous physical position in the room.

Baron, Tom, and Cooper (1985) conducted separate meta-analysis for assessing the influence of student social class and race on teacher expectancies. A total of 20 studies were identified in which student social class was related to a measure of teacher expectancies. In general, the meta-analysis supported the following hypothesis--white students elicited higher teacher expectations regarding achievement than black students. Similarly, a middle-class background generated higher expectations than a lower-class background. With regard to other racial groups, studies involving comparisons of Mexican-Americans with whites indicated higher expectations were held for whites. However, Wong (1980) and Tom, Cooper & McGraw (1984) found that grade expectations were higher for Asian children than for whites. In addition, other studies (Katz & Braly 1933; Karlins, Coffman & Walters 1969; Sue & Kirk 1972) indicate

that Asians are stereotyped as being more industrious, studious, conforming and achievement-oriented than whites.

In summary, the conclusion here is that race and social class effects on teacher expectations do exist. It is clear that social class and race of student are important sources of information to teachers and related to their expectancies.

D. Pygmalion Effect in the Sport Setting

Much research on teacher expectations has focused on ways in which teacher perceptions of student ability can ultimately affect student performance. The majority of research has been generated from studies related to classroom instruction. Very little of this research, however, has been operational in the physical education setting. Martinek (1981) argues that a possible reason for that is due to the fact that physical education research has mostly dealt with global methodologies, curricular concerns and, at best, observational skills pertaining exclusively to motor skill performance.

Crowe (1977) investigated the operation of Pygmalion Effect and the intervening factors responsible for the Effect. The Brophy and Good Dyadic Interaction Analysis System (1979) was used to identify the dyadic interaction patterns between the teacher and individual student in the high and low expectancy groups. In this study, four junior

high school teachers were asked to rank their students in order of their physical achievement or skill potential. The rankings were assumed to represent the teachers' expectations for their students' performance in physical education. The results of the study showed that the: (a) designated high achievers were given significantly more opportunities to respond to the teachers' questions than the low achievers; (b) designated high achievers were found to be treated more warmly by their teachers than low achievers; (c) designated high achievers were found to receive more attention and were given more opportunities to respond; (d) no significant differences were found between high and low achievers in terms of the types of new material taught.

Martinek and Johnson (1979) assumed that if expectancy effects occur and operate in the classroom then they may also be evident in the gymnasium even though the nature of the activity is different. They also thought that teacher's expectations can be influential in the development of certain psychological components of a child's personality makeup. The purpose of their study was to identify specific and differential teacher-student behaviors associated with high and low expectations of teachers in a physical education setting. In addition, they tried to determine the effects of these expectations on the development of the child's self-concept. A Dyadic Version of Cheffers Adaptation to Flanders Interaction Analysis System (Martinek & Mancini 1979) was the observational tool used to identify

the teacher student behaviors. They found that within a physical education setting high achievers enjoy advantages, such as, more attention, more praises, more acceptance, more intellectual stimulation, and better self-concept.

In another study, Martinek (1980) tried to determine the differential influence that teachers' expectations, self-concept, and sex had on students' expectations of motor task performance. He found that students expectations of motor task performance were significantly related to and presumably affected by the expectation of the teachers as well as the student's self-concept. He explained that the significant relationships of teachers' and students' expectations is largely due to messages that a student receives from a teacher. Such messages may be either "inviting" or "discriminating" depending on the expectations held by the teacher for the student.

Recently, youth sport has been rapidly increasing in popularity within communities across the world. As a result, interactions between coach and child have captured the interest of several investigators (Danielson, Zelhart & Drake 1978; Percival 1971). Smith, Smoll and Hunt (1977) have introduced the Coaching Behavior Assessment System (CBAS), an analytical tool for coding coachers' behaviours in naturalist setting. CBAS offers a measurement of both reactive and spontaneous behavior. Scholars who have employed CBAS have focused on the congruency of coachers' overt behaviors and children's perceptions of these

behaviors within the context of Little League Baseball (Smith, Small, and Curtis 1978; Small, Smith, Curtis & Hunt 1978). Their basic question has been whether or not children understand the intention nested in adult behavior. They found that players of trained coaches evaluated the coaches and team's interpersonal environment more positively. However, no attention has been given to how coaches' interactions may be biased by their perceptions of children ability. In order to understand that Rejeski, Darracot, and Hutslar (1979) tried to find whether coaching behaviors covary with the coach's perception of children's abilities. In other words, they tried to determine the extent to which the Pygmalion Effect operated in a youth sport setting.

Their results partially support the notion of Pygmalion Effect in youth sport. Although both rate score and mean percentage data suggested that high expectancy children were reinforced more than low expectancy children, high expectancy children experienced a higher rate of nonreinforced behaviors. In other words, coaches, rather than intentionally ignoring low ability children, simply look for specific correct responses and do not adjust standards for individual abilities.

In summary, the vast amount of research concerning expectation communication has provided convincing evidence that expectations do exist and operate. Expectation research in physical education and sport settings is at the

neophyte stage and has only surfaced as a viable pursuit of inquiry recently. The ability to understand the nature and strength of expectation effect relies on the development of sequential models and a verifiable theory of how expectation effects are communicated.

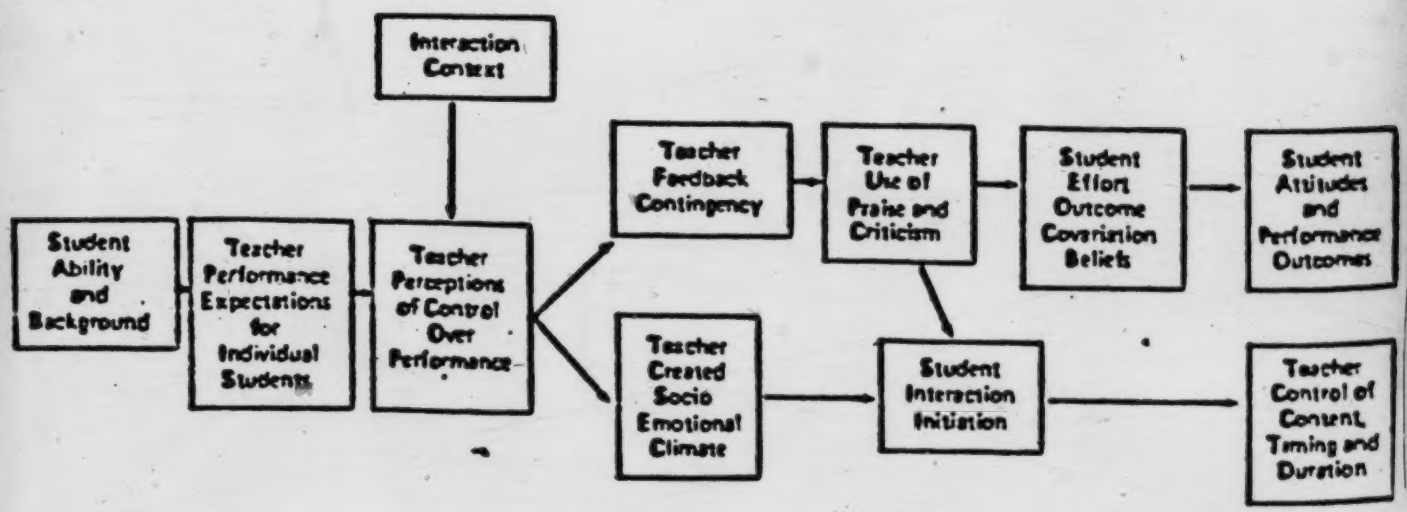
E. Two Models for Teacher Expectations Communication and Behavior Influence

1. A Model in the Classroom

Classroom observation reveals consistent patterns of differential teacher behavior toward high and low expectation students. Cooper (1979) suggested a model, which integrates particular treatment findings into an influence sequence. The model (see Figure 1) outline the cognitive processes through which teacher expectation can sustain a given level of an achievement. In other words, the purpose of the model is to integrate the climate, feedback, and initiation variations into a causal process theory to explain performance expectation communication and behavioral influence.

Figure 1:

A model for expectation communication and behavior influence.


Interaction Context
Student Ability and Background
Teacher Performance Expectations for Individual Students
Teacher Perceptions of Control Over Performance
Teacher Feedback Contingency
Teacher Use of Praise and Criticism
Student Effort Outcome Covariation Beliefs
Student Attitudes and Performance Outcomes
Teacher Created Socio Emotional Climate
Student Interaction Initiation
Teacher Control of Content, Timing and Duration

(Taken from Cooper 1979)

The model shows: (1) that teachers form differential expectations for student performance. Variations in student background and ability lead teachers to form differential perceptions of how likely students are to succeed; (2) that expectations, in conjunction with the interaction context, influence teacher perception of control over student

performance; (3) that control perceptions influence teacher feedback information and the socioemotional climate of the classroom. Teachers may be increasing personal control by creating a negative climate and feedback pattern for lows and thus inhibiting low initiations. This means that lows are more often praised and criticized for control purposes (external to student performance) and highs are more often with effort as the criterion (a personal cause); (4) that feedback differences influence student beliefs concerning the importance of effort in producing personal outcomes. Negative climate and feedback patterns may decrease student initiations. The negative patterns employed with low expectation students then result in increased teacher control over interaction content, timing and duration; (5) that effort outcome perceptions influence the motivation behind student performance. A stronger belief on the part of lows than highs that reinforcements are controlled by external factors was proposed as a consequence of using a control feedback contingency. It was pointed out that a belief in personal efficacy is a prerequisite for achievement motivation (Atkinson 1964); (6) that effort-outcome covariation beliefs may influence student performance. Non-contingent reinforcement was seen as causing negative affect and attitudes less persistence at tasks and more frequent failure.

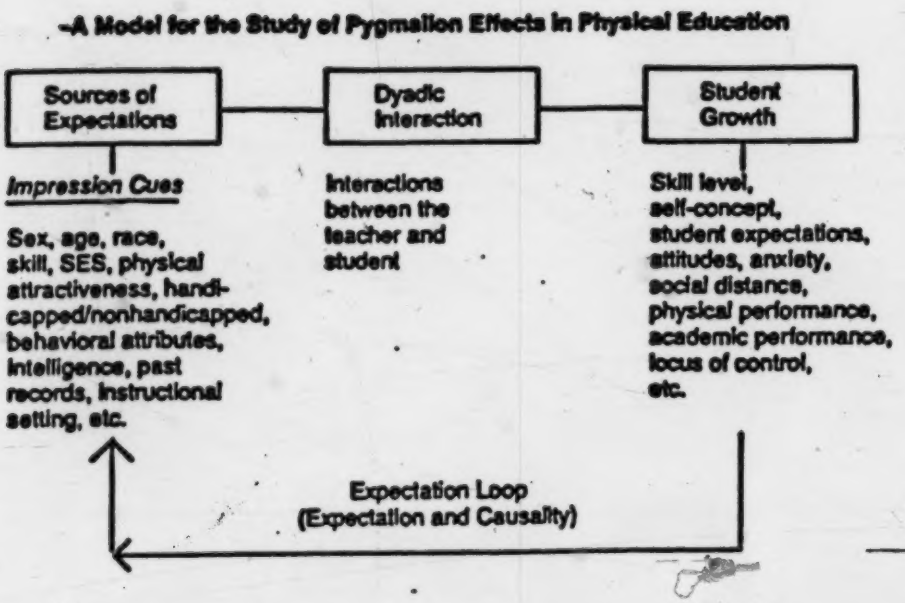
In summary, the model suggests that teachers frequently give affectively balanced feedback to low expectation

students as a mechanism for interaction control. High expectation students more frequently receive feedback based on their effort expenditure. These different evaluation contingencies may lead lows to believe less strongly than highs that effort will influence academic outcomes. Differences in effort outcome perceptions may lead to less persistence and more failure in the part of lows than highs, thus sustaining poorer performance.

2. A Model in Physical Education

Martinek (1981) presents a model from which Pygmalion Effect research can be operational in physical education setting. The model illustrates how expectations are formed, how they mediate dyadic interaction between the teacher and students, and how they can ultimately effect student growth during the instructional process. Figure 2 illustrates the model and the relationship of these four areas to one another.

Figure 2:


-A Model for the Study of Pygmalion Effects in Physical Education
Sources of Expectations
Dyadic Interaction
Student Growth
Impression Cues
Sex, age, race, skill, SES, physical attractiveness, handicapped/nonhandicapped, behavioral attributes, intelligence, past records, instructional setting, etc.
Interactions between the teacher and student
Skill level, self-concept, student expectations, attitudes, anxiety, social distance, physical performance, academic performance, locus of control, etc.
Expectation Loop
(Expectation and Causality)

(Taken from Martinek 1981)

The model suggests: (a) that teachers form expectations of their students from perceptions gained through a number of impression cues related to either teacher or student characteristics or to the interactions of both; (b) that expectations ultimately affect the quantity and quality of the interaction between the teachers and student; (c) that teacher expectations in conjunction with the quality of interaction can influence specific physical and social-psychological outcomes of the student, (d) that

student outcomes resulting from teacher expectations will subsequently reinforce those initial expectations formed by the teacher.

The model identifies four major areas which will be discussed briefly: (a) sources of expectations; (b) Dyadic interaction; (c) student growth and (d) expectation loop.

Sources of Expectations

Teachers form expectations of their students from different sources. For example Crowe (1977) found that teachers expect better physical performance from boys than girls during physical education instruction. On the other hand, Martinek & Johnson (1979) found that student gender had little effect on teachers' expectations for elementary age children. Other sources of expectations can be a student's race (Dusek & Joseph 1983), physical attractiveness (Clifford & Walster 1971), previously taught siblings (Rivers 1980), and so on.

Expectations and Dyadic Interaction

A clearer understanding of Pygmalion Effects cannot take place unless one looks at the communicative processes related to expectation formation. Only few studies in physical education have looked at the effects of expectations on dyadic interaction patterns. However, two

recent studies by Crowe (1977) and Martinek and Johnson (1979) have attempted to look at this dimension in physical education setting. (see pages 24-26)

Expectation and Student Growth

Martinek (1981) argues that a logical conclusion to the finding outlined above is that if expectancy effects occur and operate in the instructional setting, they will also be influential in the development of certain physical and psychological aspects of a child. Research in physical education has only begun to look at the relationship of teacher expectations to student growth. In a recent study by Martinek (1980), the relationship of student expectations to teacher expectations and student gender was investigated. It has been found that teacher expectations and self-concept were significant contributors to the variability of motor expectancy scores.

Expectation and Causality

The question of what causes what is a persistent problem in studies related to the effects of teachers' expectations on student outcomes. Martinek (1981) suggests that the expectation loop of the model illustrates the concept of causal relation between expectation and student behaviors and performance. According to him, the

expectation loop is based upon the assumption that if the teacher expects and encourages higher level performance, the student will perceive this encouragement and, therefore, achieve at the expected level. Consequently, the expectation of the teacher is further reinforced, resulting in a perpetuation of both teacher expectation and differential treatment toward the student. The current study attempts to replicate the first two stages of Martinek's model, namely, sources of expectations and Dyadic interaction.

F. Summary

This chapter reviewed the literature pertinent to the study. In the first section, research of the Pygmalion Effect in a classroom was examined. The second and the third part covered the literature concerning sex, race, and social class expectations.

The next section examined the Pygmalion Effect in sport setting, and finally, two models were suggested; one by Cooper (1979), in a classroom and the other one by Martinek (1981), in a physical education setting. It is clear that most studies have been conducted in a classroom environment. Very few studies attempted to examine the Pygmalion Effect in physical education setting. The current study attempts to investigate this topic in a physical education setting. It also tries to replicate the first two stages of

Martinek's model, namely, sources of expectations and dyadic interaction. Chapter 3 describes the purpose of the study and the hypotheses.

Chapter 3

Purpose and Hypotheses

The major objective of this study is to highlight and analyze the relationship between the way the teacher perceives his students in the academy and the way he reinforces the students in physical education classes.

A second objective of this study is to understand the effect of a few explanatory variables on the way the teacher perceives his students as either low or high expectancy.

The following are the research's hypotheses:

1) During physical education classes, the teacher will more positively reinforce and more frequently contact those children for whom he holds higher expectations in academic classes.

In order to systematically test the above mentioned, it is broken down to several hypotheses. The latter hypotheses are presented in tabular form and then spelled out in detail.

Table 1

Contacts, and Positive Reinforcements

Rating in Academy	Rating in Phy. Educ.	Predicted teacher reinforcing behavior
High expectancy	High ability	Many positive reinforcements & contacts
High expectancy	Low ability	Many positive reinforcements & contacts
Low expectancy	High ability	Few positive reinforcements & contacts
Low expectancy	Low ability	Few positive reinforcements & contacts

Hypothesis 1a:

Expectations and the use of positive reinforcements are positively related. That is, high expectation students receive greater positive reinforcements than low expectation students.

Hypothesis 1b:

Expectations and the number of contacts between teachers and students are positively related. That is, high-expectation students have more contacts with their teacher than low-expectation students.

Hypothesis 1c:

There is not a significant difference in the amount of positive reinforcements and contacts given to high academic expectancy students, regardless of their physical education abilities.

Hypothesis 1d:

There is not a significant difference in the amount of positive reinforcements and contacts given to low academic expectancy students, regardless of their physical education abilities.

Most of the literature studies two expectation groups; high and low expectancy students. However, few of the studies (Cooper & Baron 1977) included a third expectation group which fall between high and low. In order to better understand the way teacher gives negative reinforcements, a third expectation group is included in this study. The hypotheses are presented tabularly and then spelled out in detail.

Table 2

Negative Reinforcements

Rating in Academy	Rating in Phy. Educ.	Predicted teacher Reinforcing Behavior
High expectancy	High ability	Few negative reinforcements
High expectancy	Low ability	Few negative reinforcements
Medium expectancy	High ability	
Medium expectancy	Low ability	
Low expectancy	High ability	Many negative reinforcement
Low expectancy	Low ability	Many negative reinforcement

Hypothesis 2a:

Expectations and use of negative reinforcements are negatively related. That is, low expectation students receive greater negative reinforcements than high expectation students.

Hypothesis 2b:

The number of negative reinforcements given to medium expectancy students are significantly different from those given to high and low expectancy students.

The second aim of this study is to understand how chosen independent variables affect the way the teacher perceived his students as either low or high-expectancy students. It is assumed here that sex, race, and social class affect the teacher's perceptions of his/her students as either high or low expectancy students.

Hypothesis 3:

Higher sport expectations would be held by the teacher for boys than for girls.

Chapter 4 describes the methods and procedures followed in the study.

Chapter 4

Method and Procedures

Research Design:

The major purpose of the study is to analyze the relationship between the way a teacher perceives his students in academic subjects and the way he interacts with them in physical education sessions.

A secondary purpose is to understand the effect of sex on the way a teacher perceives his students as either low or high expectancy.

There are two types of studies on teacher's expectancy effect: (1) experimental studies and (2) naturalistic studies. The experimental studies have been strongly criticized for lacking external validity. Therefore, this study investigates naturally formed teacher expectations and teacher-pupil interaction. It is an empirical study in which data were collected through observations and interviews.

This chapter will describe research procedures followed in the study. It is presented in four sections (a) Sample (b) Data Sources (c) Procedures and (d) Analysis.

A. Sample

The size and nature of the sample were determined by two factors: (1) knowledgeable researchers involved in

similar investigations (e.g., Brophy 1976) who advised that the nature of the study dictated a small research sample, and (2) the willingness of a teacher who teaches both academic subjects as well as physical education to participate in the project. These factors, when viewed within the framework of time, money, and manpower constraints led to a decision to study one class.

Permission was granted to approach one of Edmonton Public Schools and one teacher showed interest in the project. A number of teachers declined to participate in the study claiming that the time of the year (early September) was inconvenient. It could be, however, that opening themselves to extensive observations, videotaped lessons, and interviews was too threatening for these teachers.

A letter outlining the general purpose of the project was sent to the school (see appendix A and B). In addition, the parents were informed about the study and they were asked to confirm their child's participation.

The characteristic of the sample were:

1. **School**: The public school was located in Edmonton. It served 200 children ages five to fourteen.
2. **Teacher**: The teacher is a 34 year old white male, who held a BEd. degree. He has 11 years of teaching experience in various schools. During

his studies he was trained to teach academic subjects. He had also been trained for one semester to teach various skills in physical education.

The teacher has taught most of the academic subjects as well as physical education sessions. In addition, he has been involved in coaching the volleyball team in school. He argued that "as the years go by I get to be a lot more comfortable in teaching physical education."

3. **Students**: The original student sample comprised of 16 individuals between the ages of ten and eleven. There were eight boys and eight girls who comprised one class of grade six. It was necessary to exclude one female student because she joined the class two weeks after the research had started. It is noteworthy that all students in this class came from middle-class families. (See subject's demographics in Table 3.)

B. Data Sources

The purposes of the study necessitates four classes of data to be collected. (1) Teacher-pupil interaction in physical education. (2) Teacher-pupil interaction in academic subjects. (3) Teacher expectation data and (4) students' demographics and perceptions.

Table 3

A Few Characteristics of the Sample

	SEX			
	BOY		GIRL	
	COUNT	COUNT PERCENT	COUNT	COUNT PERCENT
NUMBER				
1			1	6.7%
2	1	6.7%		
3			1	6.7%
4			1	6.7%
5			1	6.7%
6	1	6.7%		
7	1	6.7%		
8	1	6.7%		
9	1	6.7%		
10	1	6.7%		
11	1	6.7%		
12			1	6.7%
13	1	6.7%		
14			1	6.7%
15			1	6.7%
TOTAL	**8**	**53.3%**	**7**	**46.7%**
FATHER ORIGIN				
Canadian	7	50.0%	4	28.6%
Other	1	7.1%	3	14.3%
TOTAL	**8**	**57.1%**	**6**	**42.9%**
MOTHER ORIGIN				
Canadian	7	46.7%	5	33.3%
Other	1	6.7%	2	13.3%
TOTAL	**8**	**53.3%**	**7**	**46.7%**

(1) Teacher-Student Interaction in Physical Education

The tool used to secure physical education interaction data is the Dyadic adaptation of CAFIAS developed by Martinek (1977). The CAFIAS is an observation tool developed by Cheffers, Amidon & Rogers (1974) and refined by Martinek (1977).

CAFIAS: Cheffers adaptation of Flanders Interaction Analysis system is an observational tool used to identify predominant interaction patterns and process categories between the teacher and students. An additional category was added by Cheffers to provide a means for measuring analytic student response. Furthermore, this system was designed for a use in physical education classes and is capable of capturing and describing verbal and nonverbal behaviors.

Table 4 provides a summary of the CAFIAS categories. An outline of the system is presented in Appendix C.

Table 4

Categories of CAFIAS

NON-VERBAL	BOTH	BEHAVIOR
12	2	Praise, encouragement
13	3	Acceptance of student's ideas
14	4	Question
15	5	Lecture, information giving
16	6	Directions
17	7	Criticisms
18	8	Role student response
18	8	Analytic student response
19	9	Unpredictable student response
10	20	Silence confusion

Dyadic Adaptation of CAFIAS: Interaction between an individual student or a small group of students and the teacher were of primary concern in this study. Martinek (1977) suggested a dyadic adaptation of CAFIAS which provided a method to record and analyze these interactions. Teacher behavior directed at the entire class was not recorded whereas interactions with a single student or a small group of no more than four students were recorded.

The decision to look at a small group is based upon the belief that individual members of a small group perceive the contact by the teacher as a dyadic interchange. This adaptation allowed the investigator to look at the CAFIAS categories mentioned above and at the total number of contacts between teacher and individual and small groups. The dyadic adaptation of CAFIAS included the following procedures:

1. The students wore shirts with assigned I.D. numbers.
2. The observer coded only the interactions that occurred between the teacher and a single student or a small group of no more than four students.
3. All behavior tallies were accompanied by a numbered subscript representing the individual student or small group of students involved in an interaction.
4. Behaviors were recorded at 3 second intervals as long as the interaction continued.

The physical education lessons were videotaped in order to allow for repeated examination of the interaction to be studied and thus, increase the reliability of the study.

(2) Teacher-Student Interaction in Academic Subjects

The tool used to secure interaction data was the dyadic adaptation of CAFIAS developed by Martinek (1977), (see Teacher student interaction in physical education). However, the researcher did not video-tape student-teacher interactions but observed it and coded only those interactions that transpired between the teacher and a single student. Unfortunately, there was only one observer in the classroom, hence, the reliability of this analysis decreased.

(3) Teacher Expectation Data

Expectation data were collected through interview techniques. The protocols developed required the teacher to: (1) rank the best three and the lowest three students according to how well they perform at school, (2) rate pupils according to how well they are expected to perform in academic subjects (ranging 1 to 7), (3) rate pupils according to how well they are expected to perform in physical education classes, and (4) Provide reasons why children are placed in particular rank or rating categories. The latter task was facilitated by encouraging the teacher to "think out loud" as he was making decisions concerning ranks and ratings. The researcher recorded on audio tape the evaluative statements of the teacher to get more

detailed information which would provide valuable insights into the logic of teacher expectation ranking. In addition, the researcher asked the teacher a few questions concerning his attitudes toward pupils and his teaching orientation. Interview protocols are presented in Appendix D.

(4) Students' Demographics

Students' demographics and perceptions were recorded through interview techniques. The researcher interviewed each student about: (1) demographics and (2) general satisfaction from physical education session (See Appendix E). Following the interviews each student was asked to rank order his or her classmates on two lists according to:

a. how good they are in game activities and
b. how good they are in other sport activities (gymnastics, fitness, and so on)
c. In addition, each student was asked to rank oneself on those two lists

It is worthwhile noting that by the time the study was undertaken the students practiced various games in physical education sessions and did not deal with other subjects in physical education.

C. Procedures

There were four phases in the research project. The first, a preparatory phase, was devoted to the development

of teacher students interview protocols. Also, the researcher practiced the use of a videotape camera and the observation tool to be employed in the study. The second phase included videotaping of physical education sessions two days in a row. Throughout the researcher became familiarized with the students by spending time in the classroom. The fourth phase involved completing the collection of the data.

(1) Preparatory Phase

The major object of the preparatory phase was training in the use of a video camera and Martinek observation tool. The researcher videotaped one physical education session which was given by a qualified teacher. One major difficulty was encountered during the training period. The problem arose when there was an interaction between the subjects (students) and the research tool (videotape). There was a lot of excitement in the class and the children reacted unnaturally. The problem was resolved in the actual study. The researcher found out that the subjects had been exposed to the camera device before. The teacher had videotaped his class in the past, thus his students got used to it.

Following the first videotaping experience, the researcher analyzed the videotaped using Martinek's

observation system. By doing so, the researcher studied and prepared herself for a live coding in the classroom.

Interview protocols, to be used for obtaining teacher expectation data and student demographics, were also developed during the preparatory phase. The questions were constructed using information available from relevant literature (e.g. Dusek 1985) and personal communication with other investigators.

The researcher was aware of the fact that the teacher might be reluctant to participate in a research where he should rank order his students on one scale, since he might find it inapplicable. As a result the researcher encouraged the teacher "to think out loud" and describe the characteristics of his students as he made decisions concerning rank and ratings. The protocols have been described earlier in the chapter and are presented in Appendices D and E.

(2) Videotaping Two Physical Education Sessions

The second phase of the study involved getting into school and videotaping two physical education sessions in a row. The researcher wanted to get this information at the beginning of the study in order to ensure that the teacher would have only a vague idea of the study.

The researcher was introduced by the teacher as a visitor to the gym with an interest in physical education

activities. In addition, the teacher gave each student a shirt with an I.D. number which would appear clearly in the pictures.

The teacher was told to teach a regular lesson and since at that time the class was practicing team handball skills, the first taped lesson presented various team handball activities. In the following day the researcher videotaped the second physical education lessons. The students wore the same shirts, however, this time they were playing the game "murder ball". The physical education classes were held regularly during the afternoons on Wednesdays, Thursdays and Fridays.

(3) Familiarization Phase

A one-week familiarization period was spent in the classroom. The researcher spent three days in the classroom watching classroom routine. During that time the researcher was engaged in a number of pre-planned activities:

1. She familiarized herself with classroom routine.
2. She memorized the names of the students. This was a prerequisite for the use of the observation technique.
3. She practiced using the classroom observation technique.
4. She arranged to carry out students interviews.

(4) Data Collection Phase

The researcher spent about 20 hours in the school over a six week period. Following the familiarization phase the researcher was involved in four activities:

a. Classroom interactions were coded during five different lessons. Data were collected in language, mathematics, and literature lessons. The observations were held during the mornings and afternoons.

b. Two more physical education lessons were videotaped. In the first lesson which was taped in the third week, the students practiced scoop-ball skills. In the fourth lesson, which were taped towards the end of the study, the students worked in stations, practicing various physical fitness skills.

c. Each student was interviewed using the interview protocols (See Appendix E). Interviews were conducted separately with each student outside the classroom. The students were assured that their answers would remain confidential.

d. Teacher expectation data was collected. This information was collected in two phases. In the first phase, which was held at the end of the familiarization week, the teacher was asked to rank order the 3 high academic achievers and the 3

low academic achievers. In the second phase an interview was conducted with the teacher upon completion of the data collection. The researcher interviewed the teacher during the last phase of the study to ensure that the teacher would not modify his behavior. There was a possibility that during the interview the teacher would find out the exact purpose of the study. Therefore, it was important to conduct the interview upon completion of the data collection. The interview was tape-recorded and subsequently transcribed for analysis (See Appendix D).

D. Analysis

Data Preparation: Previous to analyzing the data, certain preparatory activities were carried out. These activities are described below.

There were two kinds of process data (Dyadic adaptation of CAFIAS). One was interaction variables in four physical education videotaped sessions while the other was interaction variables in five classroom observations. The researcher analyzed separately each physical education session using the CAFIAS. Physical education interaction variables appropriate for the study were identified, and pupil scores on each variable calculated.

At his stage the researcher had four coding sheets from physical education sessions and five coding sheets from academic lessons. The raw data from the academic coding sheets were summed, by pupil on each of the categories and the same calculation has been done for the physical education coding. Since all the students attended classes during coding periods, there was no need to adjust the variables in accordance with pupil attendance.

Interaction variables in academic classes and in physical education sessions were punched into a computer. In addition, all other information concerning student demographics, teacher expectation in academic subjects and in sport, and student evaluation of their classmates in games and in other physical education subjects were punched into the computer.

Intercoder Reliability: Intercoder reliability was calculated for one physical education lesson. A graduate student was trained to use the Dyadic adaptation of CAFIAS. Following his training, the student coded the behaviors which recorded during the fourth physical education lesson.

Reliability was calculated using a Spearman-Brown Formula (1981). The formula is:

$$\text{Reliability} = \frac{2 \text{ X Correlation}}{1 + \text{Correlation}}$$

The measures of intercoder reliability are reported in Table 5. Most of the results appearing in Table 5 are high because of the extremely low frequency of occurrence of some behaviors. Also, in some cases a 100 percent agreement between coders presents an agreement that the event did not occur.

Data Analysis: The study required two stages of analysis. In the first stage, relationships between teacher expectation and the nature of teacher-pupil interaction were investigated (Tables 17, 18). In the second stage, relationships between student, demographics and differential teacher behavior were investigated (Tables 27, 28). All of the above analyses were computer analyzed using SPSSPC.

Table 5

Reliability Measures

Category	Correlation	Reliability
2	0.4231	60%
12	1	100% - (N)
3	0.5833	73%
13	1	100% - (N)
4	1	100%
14	1	100% - (N)
5	1	100%
15	1	100% - (N)
6	0.6328	77%
16	-0.1538	26%
7	0.9564	97%
17	1	100%
8	1	100%
18	1	100% - (N)
9	0.70	82%
19	1	100% - (N)

NOTE: "N" indicates an agreement that the event did not occur.

E. Summary

This chapter described the research procedures of the study. The description included detailed discussions of the selection and nature of the sample, the sources and methods of data collection, and the types of analysis applied to the data. Chapter 5 presents the finding of the study.

Chapter 5

Results

The study had two purposes. The first, and major, purpose was to investigate the relationships between differential teacher academic expectations and the nature of teacher-pupil interactions in the physical education. The second purpose was to examine the relationship between student gender and differential teacher behavior. A statement of the research questions addressing each purpose was presented in Chapter 3.

In this chapter, the results of the investigation of each research question are reported and discussed in turn. The chapter is presented in four sections: (1) General description, (2) teacher expectations and teacher-pupil interaction, (3) additional findings, and (4) student gender and differential teacher behavior.

Part 1

A. General Description

In this phase of the study, an attempt is made to describe the research setting is made. This qualitative approach is used to generate rich and subjective data which quantitative methods cannot secure.

The data was gathered through observational sessions where the researcher openly wrote descriptive notes of events. In addition, when some events occurred, questions were asked by the researcher and "haphazard interviewing" was conducted. This method of casual and informal interviews often produced rich data relevant to the study. An attempt was made to collect data that would, in some measure, fulfill the objective and purpose of the study.

Three strategies of qualitative data collection were recognized in this study:

The Researcher as a Passive Observer

The researcher watched interactions between two or more actors in the study and listened to their conversation. The researcher attempted to determine, if, in any measure at all, the researcher's presence influences the response of those involved.

The Researcher in Directive Interaction

In many cases the researcher found it necessary to solicit information directly through open questioning. Informal interviewing often occurred and was recognized as a valuable method of gathering information, freely provided by the subjects.

The Researcher as Participant

The researcher was identified as a university researcher and a physical education teacher who was interested in teacher-student interaction in a gymnasium. The researcher's position as an university figure was considered by the teacher as an opportunity to express concerns and attitudes about physical education lessons. In addition, the researcher offered her help in teaching any subject which would be helpful to the teacher. An arrangement was made that the researcher would teach Folk Dancing and Gymnastics.

Towards the end of the study the researcher was asked by the subjects to show the video-taped lessons. Five physical education lessons were shown to the subjects, including the researcher's Folk Dancing lesson.

To illustrate the above strategies of data collection the following three sections are presented.

1. Passive Observation

Most of the data collected in this study was secured through observations. The researcher observed the class for six weeks in various lessons. Also, five physical education sessions were video-taped.

During the first week, the children were aware of the researcher's presence. They waved to the camera and often

glanced at the researcher. In the second week, however, the researcher felt that she became part of the class. In addition, the teacher assured the researcher that everybody, including him, behaved naturally, since they got used to having visitors in the classroom. He argued that the children had been exposed to the camera before, therefore, they reacted naturally in the studied physical education lessons.

The lessons started usually with a warm-up. Each child entered the gymnasium and began his own warm-up. In this part of the lesson no directions were given to the pupils. The teacher was keen to establish the type of response he wished from his student early in the semester. This early training generated a prompt response from the pupils, who entered the gymnasium and quickly started the warm-up. At the same time, the teacher was busy with his own exercising and he did not watch the students or give them any feedback.

When the students finished the warm-up, the teacher outlined what was expected of them. During most of the classes which were observed, students, once finished the warm-up, prepared the equipment needed for the next activities. Most often, the teacher himself partook in those preparations.

The teacher had decided to deal with ball games at the beginning of the year. The children, therefore, practiced various games such as, team handball, murderball, volleyball and scoopball at the time of the study. Two captains were

chosen, usually in alphabetical order, and they decided on who was going to play with them. The teacher did not try to ensure that the chosen groups would even match one another.

It appears then, that the teacher did not use a direct style of teaching which involves a use of authority to control, instruct, or correct activities. Instead, he used a democratic style of leadership according to which pupils have to take many responsibilities. For example, the teacher asked the pupils to practice a specific skill with the ball. The students began their practicing, however, the teacher neither walked among them nor gave any feedback. Instead, he became part of the class by practicing with them, without giving them any particular directions. Also, when a subject, for example, did not want to play and preferred to step outside, the teacher accepted this behavior, thus not forcing the student back to the game.

When the teacher wanted his pupils' attention, he stood still waiting for it. He never raised his voice or gave any other clear signal to attract the students' attention. Usually, the students were pre-occupied with their activities so that few minutes had passed until they realized that the teacher was waiting for them. In some cases, it took more than five minutes until everybody was ready to listen to the teacher.

By and large, there were very few interactions with individual pupils. The teacher tended to give few instruction to individuals. Most instructions were

addressed to the whole class. When the teacher interacting with his pupils he did not use many non-verbal communications. He neither smiled much nor did he show anger or distrust; however, he frequently used sarcastic remarks.

Two interesting incidents were observed. The first one involved subject 5, who found herself with no partners for the ball practicing. She turned to the teacher and he played with her for a few minutes. The second incident involved subject 8 who did not perform correctly one of the exercises. The teacher was quite angry with the student and asked him to go back to the wall and redo the exercise in front of the whole class. It was the only case where the teacher used such a punishment.

The following part describes events in which the researcher acted in directive interaction.

2. Directive Interaction

This part of the study provides information which the researcher gathered through open questions from the subjects. In many cases the researcher found it necessary to solicit information directly from the teacher and the pupils. It is impossible to describe every event, however, attempt was made to describe events which contribute to the purpose of the study. In this phase of the study the students' and the teacher's viewpoints are presented.

The Teacher's Viewpoint

The teacher expressed an attitude regarding his school environment and students' background. He was pleased with the school and felt that they had been improving greatly for the last three years. He was aware of the fact that many pupils in this school, who came from middle-class families, experienced family crises and problems. However, he was convinced that the children were "basically good kids" and less spoiled than pupils in other schools.

In addition, the teacher argued that he had not read students' personal files which described in details the background of each child. Instead, he preferred to learn about them through his own experience. He wanted to derive his own feelings, ideas, and expectations directly from them rather than from other sources.

Apparently, the teacher knew very much about each student in his class. He was familiar with their families' background, learning abilities, and status in class. Also, he admitted that he liked very much some students in his class. It was clear, for example, that subject 14 was one of his favorite students. He expressed those feelings by saying that, "if I would have a daughter, I would like her to be exactly like" subject 14.

On the other hand, when he talked about subject 5, he mentioned that he could not expect much of her. He explained that subject 5 came from a lower income family who

did not give her any support. When the researcher asked him to describe his expectations from and teaching methods used with subject 5, he said that subject 5 would not contribute much to society and therefore he was not prepared to go out of his way for her. He argued that "subject 5 may be a good person, she may do well at a job and she may be a successful wife and mother, but I don't have a lot of hope for her." However, he mentioned that he would try to make her feel good about this year and he would try to make her feel better about what she could do.

Other interesting phenomenon occurred with regard to subject 1. The teacher had perceived this subject as low academic achiever, however, towards the end of the study he changed his mind. He explained that subject 1 was having a lot of support from her family. Her parents who had immigrated from Afghanistan, were highly educated people. They helped their daughter and therefore she progressed during the last two weeks.

The teacher believed that the boys were doing much better in physical education than the girls. He explained that the boys were involved in the community; they were playing in the local league and they were members in hockey teams. The girls, on the other hand, were not exposed to any sport activity and, therefore, they were at a disadvantage compared with the boys. The girls did not have support from their parents to get involved in sport. Thus, they did not excel in physical education. He mentioned that

he could not give any of his girls more than 5 on a sport expectation list.

Students' View Point

All students in the class were generally in favor of the teacher and the physical education program. They usually enjoyed the activities in which they took part, however, a couple of girls preferred to have activities other than games.

The students believed that their teacher did not discriminate among them. Although some children had been chosen to be team captains more often than the others, it was clear that the teacher tried to give an equal opportunities to each child. Recently, they had decided to choose captains in alphabetical order, thus everybody would get a chance to be a captain.

It is noteworthy that more than 60 percent of the students had a single parent. Some of them mentioned the fact that they did not know much about the other parent. In addition, it was interesting to see how each child ranked himself on the physical education list. Some pupils were close to reality and placed themselves in a reasonable rank, while others perceived themselves significantly different compared with their teacher and classmates.

The following section describes the researcher as a participant in the class.

3. Participant Observation

The researcher's position as a physical education teacher and university student was recognized by the teacher as an opportunity to express concerns about physical education program. He explained his goals, methods, and ideas about physical education lessons. In addition, the teacher was keen to explain to the researcher various activities in the classroom. For example, when the students went to the computer room and worked with the computers, the researcher received a detailed explanation about the computers from the teacher.

It was decided by both the teacher and researcher that the researcher would take part in physical education lessons by teaching Folk Dancing and Aerobics. Prior to the activity, the researcher discussed with the teacher some problems which she anticipated. For example, the researcher wanted to hear the teacher's opinion about the relationships between boys and girls at this age. She wondered if boys would dance with the girls. Also, the teacher suggested to video-tape the researcher during the dance lesson.

Following the researcher's lesson, the students and the teacher requested to watch the video-taped lessons. The researcher showed those films and watched the subjects' reaction. The pupils were very happy to see the films, they laughed and joked about themselves. The teacher, on the other hand, wanted to give the researcher some explanations

on various activities. For example, he explained why he was waiting for students' attention for such a long time. However, it was clear that he enjoyed those films as well.

Summary

In this part of the study, the researcher attempted to describe the research setting. It was impossible to describe every event, however, the above examples were used to generate rich data which the following analyses could not give. Owing to space limitations many interesting events were not mentioned here, thus this chapter was limited to events which the researcher chose to describe.

The following part analyzes teacher expectations and teacher-pupil interactions.

Part 2

B. Teacher Expectations and Teacher-Pupil Interactions

(1) Teacher Expectations in the Academy

Two interviews with the teacher were conducted during the study. In the first interview, which was held at the beginning of the study, the teacher was asked to rank the students according to how well they were expected to perform

in academic subjects. The teacher identified three high expectation students, and three low expectation students.

The second interview was conducted upon completion of the study. The teacher was asked to rate each student on a scale ranging from 1 to 7 according to how well he/she was expected to perform in academic subjects. For the purpose of the study, those who scored 7 were identified as high expectation students, and those who scored less than 5 were identified as low expectation students. The students who fall in between those two groups were identified as middle expectation group.

A comparison of the two interviews shows that subject 1 was identified as a low expectation student in the first list but, as a medium expectation student in the second list. The teacher explained that he recently changed his opinion recently of subject 1. However, during most of the research period the teacher perceived subject 1 as low expectation student. Therefore, for the purpose of this study, subject 1 will be identified as low expectation student. The teacher perceived the other students the same across the two interviews. The three academic expectancy groups and each student's academic scores are presented in tables 5A, 6 and 7.

Table 5A
High Expectancy Subject Academic Rating

	Object Rating in Academy by Teacher
	7
NAME	
3	1
7	1
8	1
12	1
14	1
15	1

Table 6
Medium Expectancy Subject Academic Rating

	Object Rating in Academy by Teacher	
	5	6
NAME		
2	1	
10		1
11	1	
13	1	

Table 7
Low Expectancy Subject Academic Rating

	Object rating in Academy by Teacher	
	3	4
NAME		
1	1	
4		1
5	1	
6		1
9		1

(2) Teacher Expectation in Physical Education

Upon completion of the study, the teacher was asked to rate each student on a scale ranging from 1 to 7 according to how well the student is expected to perform in physical education lessons. The students who scored 7 were identified as high expectation students, and those who scored less than 5 were identified as low expectation students. The student who scored between 5 to 7 were identified as middle expectation students. The three sport expectancy groups together with each student's score are presented in tables 8, 9, 10.

At this stage of the study each student has two scores; one is the student's rating in academic subjects and the other is the student's rating in physical education. The combinations of these two scores are presented in tables 11, 12, and 13.

Table 8
High Expectancy Group in Physical Education

	Object Rating in P.E. by Teacher
	7
NAME	
2	1
6	1
7	1
9	1
10	1

Table 9
Medium Expectancy Group in Physical Education

	Object Rating in P.E. by Teacher	
	5	6
NAME		
1	1	
4	1	
5	1	
8	1	
13		1

Table 10
Low Expectancy Group in Physical Education

	Object Rating in P.E. by Teacher	
	3	4
NAME		
3		1
11	1	
12	1	
14		1
15		1

Table 11
High Academic Expectancy Pupils and Their Phuysical Education Rating

	Object Rating in P.E. by Teacher			
	3	4	5	7
NAME				
3		1		
7				1
8			1	
12	1			
14		1		
15		1		

Table 12
Medium Academic Expectancy Pupils and Their Physical Education Rating

	Object Rating in Sport by Teacher		
	3	6	7
NAME			
2			1
10			1
11	1		
13		1	

Table 13
Low Academic Expectancy Pupils and Their Physical Education Rating

	Object Rating in Sport by Teacher	
	5	7
NAME		
1	1	
4	1	
5	1	
6		1
9		1

Table 11 reports that there were six students who were identified as high academic expectancy. Those students scored between 3 to 7 on the teacher's sport expectation list. Subject 7 is the only pupil who scored 7 on both lists. On the other hand, subject 12 was a high expectancy student in academic subjects, however, she scored only 3 in the sport expectation list.

Also, there were five students who were identified as low academic expectancy, including subject 1. It seems that all of them got high scores in the sport expectancy list.

Their scores, ranging between 5 to 7, mean that those students are not so good in academic, however, they do well in sport.

The major purpose of the study is to investigate the relationship between the way the teacher perceives his students in academic subjects, and the way he reinforces his students in physical education classes. In other words, the independent variable of this study is "expectations in academic subjects," while the dependent variable is the nature of teacher-pupil interaction in physical education classes. The students' scores in sport expectation list serve as a control variable. The following is a restatement of the research hypotheses.

(3) Restatement of Research Hypotheses

1a. Expectations and the use of positive reinforcement are positively related. High expectation students receive more positive reinforcements than low expectation students.

1b. Expectations and the number of contacts between teacher and students are positively related. High expectation students have more contacts with their teacher than low expectation students.

1c. There is no difference in the amount of positive reinforcements and contacts given to high academic

expectancy students, regardless of their physical education abilities.

1d. There is no difference in the amount of positive reinforcements given to and contacts maintained with low academic expectancy students regardless of their physical education abilities.

The above hypotheses are investigated by using two expectancy groups: (1) High academic expectation group and (2) low academic expectation group. However, negative reinforcements given by the teacher are investigated with three expectancy groups: (1) High academic expectation students; (2) Medium academic expectation students and (3) low academic expectation students; therefore,

2a. Expectations and the use of negative reinforcements are negatively related. That is, low expectation students receive more negative reinforcements than high expectation students.

2b. The number of negative reinforcements given to medium expectancy students are different from those given to high and low expectancy students.

Owing to the small size of the sample, no significant test has been computed. Therefore, while the researcher will examine means and differences among them, the interpretation will be in terms of trends.

(4) Teacher Pupil Interaction

Relationships between teacher expectations and teacher-pupil interaction were investigated using 20 interaction variables derived from the Dyadic Adaptation of CAFIAS developed by Martinek (1977). The variables describe three dimensions of teacher-pupil interaction, and are so grouped for purposes of presenting and discussing the data related to this phase of the study. The variables comprising each of the three groups are summarized in table 14 and discussed briefly below. A complete description of the interaction categories is presented in Appendix C.

Table 14

Teacher Pupil Interactions: A Three-Group Classification

Variables	Category	Description
Group A: Total Teacher Talk Contribution		
Teacher talk verbal	2,3,4,5,6,7	2-12 Teacher praise 3-13 Acceptance of students ideas
Teacher talk nonverbal	12,13,14,15, 16,17	4-14 Question 5-15 Lecture, information giving 6-16 Directions 7-17 Teacher's criticism
GROUP B: Total Student Talk CONTRIBUTION		
Student Talk verbal	8, 8'	8-18 Rate Student response
Student Talk nonverbal	18, 18'	8'-18' Analytic Student response
GROUP C: TOTAL STUDENT INITIATION		
Student Initiation verbal	9	9-19 Unpredictable Student Response
Student Initiation nonverbal	19	

The variables in group A describe the frequency and type of the teacher talk. They include measures of both verbal and nonverbal interaction. It has been argued (Galloway 1971; James, 1971; and Love 1971) that the importance of nonverbal communication lies in the fact that nonverbal cues can reinforce or deny the spoken word. Teacher talk contributions are those interactions in which the

teacher is talking. For example, teacher asks a question, teacher gives directions, teacher reinforces positively or negatively and so on. Teacher talk interactions refer to contacts which are under the control of the teacher.

Group B variables are those describing the pupil performance. They are frequency variables which indicate the number of times pupils answer predictable answers, such as obedience to orders and responses not requiring thinking. They also describe predictable student responses that require some measure of evaluation and synthesis from the student. In addition, group B variables include measures of both verbal and nonverbal interactions.

Group C variables are those describing student initiated interactions. It refers to contacts that result from the pupil volunteering comments or questions or seeking out the teacher for individual attention. Those variables include verbal and nonverbal behaviors.

Thus, the measures in Group A describe the frequency and quality of the teacher talk, those in Group B the frequency and quality of the pupil performance, and those in Group C the frequency of student initiated interactions. In general, Group A variables might be considered as evidence of teacher favoritism or a communication of performance expectations.

Interaction variables appropriate to the study were identified and pupil scores on each variable calculated. This process involved a number of steps.

1. Raw data from the original coding sheets were summed by pupil for each of the 20 coding categories. These frequencies were keypunched into the computer to facilitate calculation of variable scores for an individual pupil.
2. The totals of interactions by pupil were summed. For example, subject 1 had a total of 4 interactions accross all of the 20 categories.
3. The totals of interactions by category were calculated. For example, the teacher praised verbally 12 times different students in his class (see category 2 in table 15). The data for the four physical education sessions are presented in table 15.

Table 15
Pupil Scores on Each Category
During Four Physical Education Sessions

PUPILS

CAT	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	TOTAL
1																
11																
2		1						3		4		2		2		12
12			1		1			1		1		2				6
3								2		1	1	1		1	1	7
13	1		3	2	3	3	3		1	1		1		4		22
4		1	3	3						1	1					9
14																
5														1		1
15							2									2
6		3	6	5	3	5	3	2	6	8	4		5	1	2	53
16		3	5	3	1	2	4	1	4	4	2	1	3	2	1	36
7					2	1		3	3	2	7		1			19
17	1	1			3			2		1	6					14
8	1			1								1	1			3
18			1		1		1			1						4
9			3	2												5
19			2	1												3
9	1		4		6	2	7	1	2	3	3	2	2	1	1	35
19					1											1
TOT.	4	9	28	16	21	13	22	13	16	27	24	10	12	12	5	232

Table 16 reports the interactions between the teacher and each student across the three groups of variables. In other words, it summarizes the number of interactions that each subject had on Group A, Group B, and Group C variables (see table 14 for the three groups).

Table 16
Teacher-Pupil Interaction by Groups across Three Groups of Variables

NAME	CATEGORIES: 2 to 17	CATEGORIES: 8 & 18	CATEGORIES: 9 & 19
1	2.0	1.0	1.0
2	9.0		
3	18.0	6.0	4.0
4	13.0	3.0	
5	13.0	1.0	7.0
6	11.0		2.0
7	14.0	1.0	7.0
8	12.0		1.0
9	14.0		2.0
10	23.0	1.0	3.0
11	21.0		3.0
12	7.0	1.0	2.0
13	9.0	1.0	2.0
14	11.0		1.0
15	4.0		1.0

In order to test the hypotheses the researcher calculated means and percentages for three groups of students--high, medium, and low expectancy groups. This process involved two steps:

1. Means and percentages for high, medium, and low expectancy groups were calculated across the three groups of variables. For example, the researcher calculated the means of Group A variables

(categories 2 to 7 and 12 to 17) for the high expectancy groups. The same calculation has been made for the low expectancy group and the difference between the two scores is discussed.

2. Means and percentages in each category, for high, medium, and low expectancy groups were calculated. For example, the researcher calculated the means of categories 2 and 12 (verbal and nonverbal praises given by the teacher) for the three expectancy groups.

Table 17 reports means and percentages of high, medium and low expectancy groups in Group A, Group B, and Group C variables.

Table 17
Means and Percentages for High, Medium and Low Expectancy Groups on Three Group Variables

	Group A Categories 2-7 12-17	Group B Categories 8-8' 18-18'	Group C Categories 9 & 19
Group 3 High-Expectancy Pupils	- X = 11 36.4%	- X = 1.33 53.3%	- X = 2.6 45.7%
Group 2 Medium-Expectancy Pupils	- X = 15.5 34.8%	- X = 0.5 13.3%	- X = 2 22.8%
Group 1 Low-Expectancy Pupils	- X = 10.6 29.2%	- X = 1 33.3%	- X = 2.4 31.4%

The data in Table 17 shows a clear pattern with regard to the frequency of interaction. Pupils for whom high

performance expectation were held experienced more contacts with the teacher than those who were considered to have low performance potential. For example, total teacher talk contribution to high expectancy pupils is 66. Therefore, the mean for the six high expectancy pupils is 11 and this group got 36.4 percent of the interactions.

On the other hand, total teacher talk contribution to low expectancy students is 53. The mean for the five low expectancy students is 10.6 and they got 29.2 percent of the interactions. A very similar trend exists in Group B variables and in Group C variables.

Generally, it seems that high expectancy students are more active during physical education lessons. They made more comments, asked more questions, and contacted the teacher more often than lows did. In addition, the teacher initiated more contacts with high than with low expectancy students. For example, he gave high expectancy students more praises. However, owing to the small size of the sample, no significance test could be conducted. Therefore, the researcher is not able to conclude whether there is a significant difference between the means of high and low expectancy pupils. Instead, the conclusion is that there is a trend of teacher favoritism of high expectancy pupils.

In order to gain a better perspective of interaction pattern involving high and low expectancy pupils in the class, it is important to analyze separately each category.

Percentages and means' differences should be viewed within the context of each category.

For the purpose of this study verbal and nonverbal interactions are considered as one category. For example, categories 2 and 12, which are verbal and nonverbal praises given by the teacher, are summed up to one total score. Table 18 reports means and percentages of three expectancy groups on categories 2 and 12; 3 and 13; 4 and 14; 5 and 15; 6 and 16; and 7 and 17.

Table 18
Means and Percentages for Three Expectancy Groups on Each Category

	Categories					
Group	**2 + 12**	**3 + 13**	**4 + 14**	**5 + 15**	**6 + 16**	**7 + 17**
High Expectancy Pupils	- X=1.83 61.1%	- X=2.66 55.1%	- X = 0.5 33.3%	- X = 0.5 100%	- X = 4.6 31.4%	- X=0.83 15.1%
Medium Expectancy Pupils	- X=1.5 27.8%	- X=0.75 10.5%	- X=0.75 33.3%	- X=0	- X=8 36.1%	- X=4.5 54.6%
Low Expectancy Pupils	- X=0.2 11.1%	- X=2 34.4%	- X=0.6 33.3%	- X=0	- X=5.8 32.5%	- X=2 30.3%

Table 18 provides further insights into the nature of teacher-pupil interactions in the gym. It indicates the differences among the three-expectancy groups on each category. The data relating to praises given by the teacher (categories 2 and 12) indicate that there is a tendency for the teacher to bestow more praise on high expectancy

children. In fact, Highs perceived 61.1 percent of the total praise afforded by the teacher. On the other hand, low expectancy students received only 11.1 percent of the total praise. Although no significant test has been applied, it seems that the difference might be large enough to be considered important.

A similar trend exists with regard to teacher acceptance of student's ideas (categories 3 and 13). There was a tendency for the teacher to accept Highs' ideas more often than Lows' ideas (55.1 percent compared to 34.4 percent).

However, the above tendency should be viewed with caution. The data reveal that high expectancy pupils were more active in the class. They made more comments and asked more questions during instruction (see categories 9 and 19, group C variables). It might be that high expectancy pupils experienced more contacts with the teacher since they initiated more contacts with him than low expectancy pupils. Thus, there is not enough evidence, with regard to categories 3 and 13, to conclude that the teacher behaved differentially toward students on the basis of academic expectation.

No expectancy group differences were observed in categories 4 and 14 which are operational variables describing questions asked by the teacher. It seems that the questions were distributed equally among the groups,

thus, 33.3 percent of the questions were addressed to each expectancy groups.

Generally, it appears that the teacher did not ask many questions during physical education lessons. He gave the students many directions and orders, but he asked them very few questions. This style of teaching probably resulted in the unique interaction in the gym. A comparison with the situation in academy reveals that in the classroom the teacher tended to ask many questions and, in fact, 55 percent of the total interactions are questions addressed at students.

Teacher scores on giving opinions, facts or expressing ideas are reported in categories 5 and 15. There were only 3 interactions of this kind and all of them were given to high-expectancy students. However, owing to the small amount of interactions it is difficult to render these results meaningful.

On the other hand, there were many interactions in which the teacher gave directions or orders to students (see categories 6 and 16). Table 18 reports that 31.4 percent of the 89 interactions were given to highs while 32.5 percent were given to low expectancy students. Unlike the other categories which reported that the teacher interacted more often with highs than with lows, it seems that he gave slightly more directions to low expectancy students. Generally then, the data suggest a moderate tendency of the teacher to give more orders to lows. However, this should

be viewed only as a trend in this direction and not as a significant difference.

The data in this study clearly indicate differential teacher behavior regarding the use of negative reinforcements (See categories 7 and 17). The researcher has hypothesized that expectations and the use of negative reinforcements are negatively related. That is, low expectation students receive greater reinforcements than high expectation students (see chapter 3).

Indeed, the results show that low expectancy students received 30.3 percent of total negative reinforcements while the high expectancy students received only 15.1 percent of negative reinforcements. Further, individual pupil scores related to frequency of interactions (see Table 15) reveal that there was a strong influence of one particular student on expectancy groups differences. This student, subject 8, was part of the high expectancy group and he accounted for all negative reinforcements. No other student of the high expectancy group received any negative reinforcement. It is interesting to note that the differences relating to negative reinforcement would be considerably different had this child been excluded from the analysis.

In addition, the researcher has hypothesized that the number of negative reinforcements given to medium expectancy students would be different from those given to high and low expectancy students. The data suggest that medium

expectancy students received 54.6 of total negative reinforcements.

It appears that medium expectancy students were considerably different from other students with regard to negative reinforcements. The data show a clear pattern of more often negatively reinforcing medium expectancy students than other students.

It might be, however, that subject 11 influenced these results. Individual pupil scores in table 15 indicate that subject 11 influenced strongly the results. This pupil received 72.2 percent of the total negative reinforcements which were given to medium expectancy students.

In summary, then, the data regarding negative reinforcements indicated differential teacher behavior favoring high expectancy children. This trend, however, should be viewed with caution for two reasons: (1) There were two individual students who strongly influenced the results, and (2) Part of the negative reinforcements was a response for students' behavior. There were some occasions when the teacher used negative reinforcements to control misbehavior.

5. Discussion and Summary for Categories 2 to 17

The findings in this part of the study are based on trends in the data. All of these trends are not grounded on statistical significance. Expectancy groups differences were such that they could be contested on grounds that they

were chance occurrences. The findings therefore, must be viewed with appropriate caution.

In general, high expectancy students experienced more interactions with the teacher. This,however, cannot be unambiguously interpreted as an academic expectation effect in the sense that it connotes systematic favoring of the individual. A possibility exists that a pupil created the advantage for himself by initiating contacts with the teacher.

Two of the frequency measures are susceptible to the expectation effect possibility. These are positive and negative reinforcements. The former describes praises, jokes, and encourages produced by the teacher, while the latter describes contacts, in which the teacher criticizes, expresses anger or distrust towards a pupil.

In this study conclusions regarding the existence of differential teacher behavior were strongly influenced by data relating to these two measures. Most of the positive reinforcements were given to high expectancy students. The reinforcements were distributed among the pupils in this group. On the other hand, only few positive reinforcements were given to low expectancy students (61.1 percent of reinforcements were given to high compared with 11.1 percent given to lows).

Figure 3

Positive Reinforcements Given by the Teacher

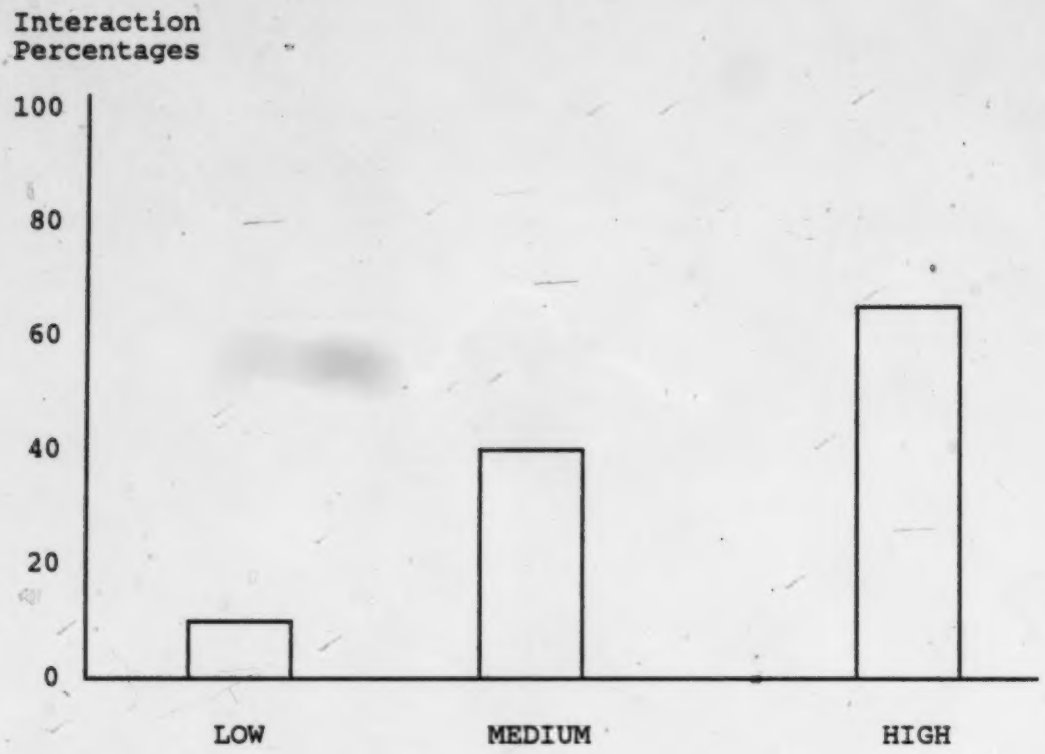
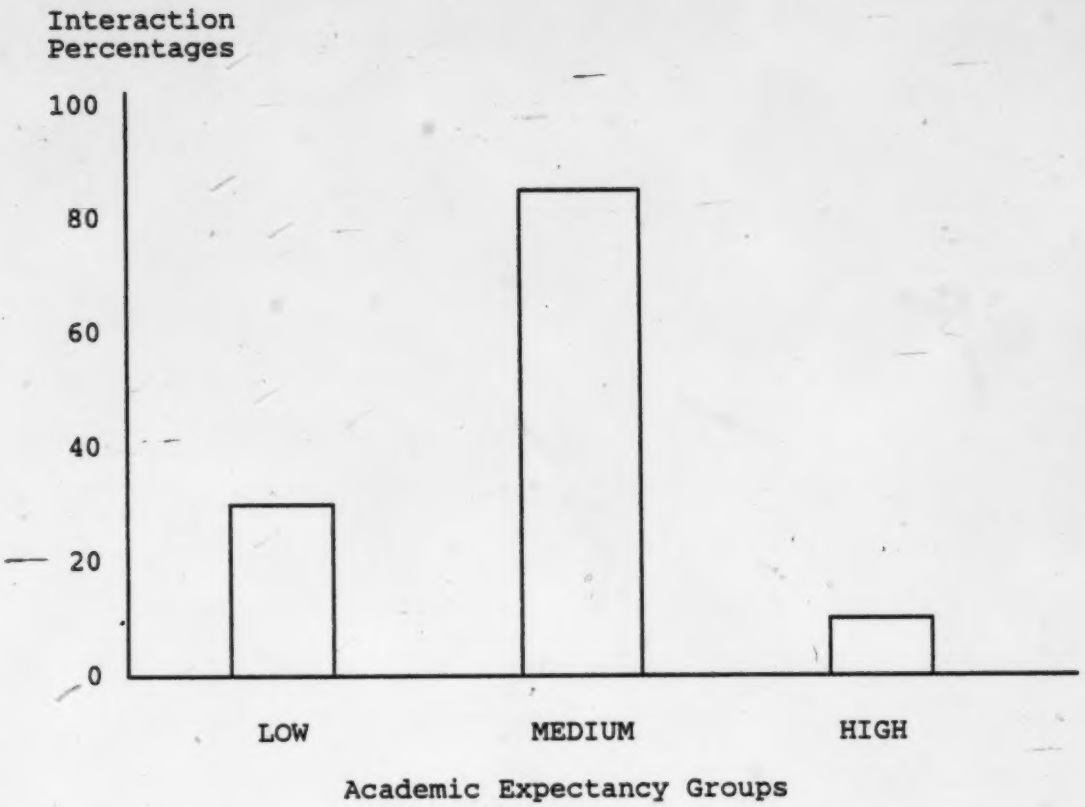


Figure 4

Negative Reinforcements Given by the Teacher



NOTE: An adjustment has been made for differences among the 3 expectancy groups. There were 6 highs, 5 lows and 4 medium expectancy students.

Moreover, very few negative reinforcements were given to high expectancy students. Highs received 15.1 percent of negative reinforcements compared with 30.3 percent which were given to lows. Further, all negative reinforcements were given to one pupil who belonged in the high expectancy group. Thus, the other students in this group did not receive any negative reinforcements. Figures 3 and 4 on page 91-92 present the percentages of positive and negative reinformcements given by the teacher to each expectancy group.

6. Findings Related to the Control Variable

The current phase of the study involved examination of relationships within two academic expectancy groups. In other words, high academic expectation students were divided into two groups: (1) high academic expectation students who were also high expectancy students in sport, and (2) high academic expectation students who were low expectancy students in sports.

A similar division was made for low academic expectation students. Within this group there were some students who were high expectations in sport and some who were low expectation students with regard to sport. Tables 19 and 20 present the relationship within each academic expectation group.

Table 19
High Academic Expectation Students and Their Physical Education Distribution

		Scores in P.E.				
	Subject	3	4	5	6	7
High in P.E.	7					X
	8			X		
Low in P.E.	3		X			
	12	X				
	14		X			
	15		X			

Table 20
Low Academic Expectation and Their Physical Education Distribution

		Scores in P.E.				
	Subject	3	4	5	6	7
High in P.E.	~~6~~					X
	9					X
Low in P.E.	1			X		
	4			X		
	5			X		

The above tables report that within the high academic expectation group (see Table 19) two groups could be identified, the first group composed from subject 7, who scored 7 in sport and subject 8 who scored 5 in sport. The second group composed of subject 3, 12, 14 and 15 who scored less than 5 in sport.

In contrast to the high academic expectancy group, the low expectancy group received high scores in sport (see Table 20). All of the subjects scored more than 4 in sport. It might be that indeed, those students were low expectancy in academic, however they were good athletes. But it might possibly be that the teacher tried to compensate those students by giving them better scores in sport., In any case, for the purpose of this study, subjects 6 and 9 who scored 7, would be identified as highs in sport and on the other hand, subjects 1, 4 and 5, who scored 5, would be identified as lows in sport.

The researcher hypothesized that there would be no significant difference in the amount of positive reinforcements and contacts given to high academic expectancy students, regardless of their physical education abilities.

In addition, she assumed that there would be no significant difference in the amount of positive reinforcements and contacts given to low academic expectancy students regardless of their physical education abilities. (See Chapter 3)

The above hypotheses were tested for Group A variables only. Differences between groups of students were calculated for positive and negative reinforcements and for total teacher talk contribution. The results are summarized in Table 21 and discussed briefly below.

Table 21
Means for Physical Education and Academic Expectancy Groups

		Category 2 + 12	Category 7 + 17	Total Teacher Talk Contribution
High Academic Expectancy Group	High in P.E.	$\bar{X} = 2$	$\bar{X} = 2.5$	$\bar{X} = 13$
	Low in P.E.	$\bar{X} = 1.75$	$\bar{X} = 0$	$\bar{X} = 10$
Low Academic Expectancy Group	High in P.E.	$\bar{X} = 0$	$\bar{X} = 2$	$\bar{X} = 12.5$
	Low in P.E.	$\bar{X} - 0.6$	$\bar{X} = 2$	$\bar{X} = 9.3$

The findings reported above show that a few trends were notable. First, the data indicated that there were slight differences among the groups means with regard to positive reinforcements. Thus high academic expectancy students who were high in sport received an average of 2 interactions while those who were low in sport received an average of 1.75 interactions.

On the other hand, low academic expectancy students who were good in sport did not receive any positive reinforcements while those students who were low in sport got 0.6 interactions per student.

Second, there was no difference between low academic expectancy students who were high in sport to those who were low in sport with regard to negative reinforcements (categories 7 and 17). There was a difference, however, between high academic expectancy students who were high in

sport to (highs got 2.5 per student compared to lows who got no interactions). The latter difference was strongly influenced by subject 8 who actually accounted for all negative reinforcements.

Third, differences existed with regard to total teacher talk contribution. It can be observed, however, that there was a trend to interact more with those students who were high in sport.

In summary, although differences exist among means, except in the case of negative reinforcements given to low academic expectancy, it seems that the differences were not significant. However, owing to the fact that the researcher can not apply significance test it is impossible to get a conclusive result.

Part 3

C. Additional Findings

The purpose of this section is to discuss some more findings which were coded during the study. Those findings would give the reader a better understanding of the quality of teacher-pupil interactions. The findings of this phase of the study involved examination of relationship between teacher expectations and teacher-pupil interaction in the academy. In addition, investigation of the data using various correlations reveal important and related phenomena.

1. Teacher-Pupil Interaction in Academy

Relationships between teacher expectation and teacher pupil interaction in the academy were investigated. The researcher used the Dayadic Adaptation of CAFIAS which has been developed by Martinek (1977). The above instrumentation has been actually used for two purposes. First, to investigate teacher-pupil interaction in physical education sessions, and second to investigate the interactions in academy.

The researcher coded the interactions during five different lessons. The data for these lessons are presented in Table 22.

Table 22 summarizes the number of interactions with each subject. It is noteworthy that the researcher did not code categories 8 and 18 which describes students responses. In addition, means and percentages for high medium and low expectancy groups were calculated separately for each category.

Table 23 indicates the differences among the three expectancy groups on each category.

Table 22
Pupil Scores During Five Academic Lessons

NAME	CATEGORIES														
	2	12	3	13	4	14	5	15	6	16	7	17	9	19	TOTAL
1	1		2		12				2		4				21
2	2		4		13				3		1		7		30
3		1	5		14						2		2		24
4	3		1		7										11
5	5		1		14								2		26
6	2		3		15				1		4	1	5		37
7	6	2	3		12				4		10		7		37
8	2		2		13				1		3		1		24
9	1		3		9		1		1		5		11		30
10	2		7		16				1		4	1	8		47
11	9		7		19						12	2	6		43
12	4		3		17								5		29
13	7		7		26						4	1	15		50
14			1		8								2		11
15													1		1
TOTAL	44	3	49		195		1		13		49	5	62		421

Table 23

Means and Percentages for Three Expectancy Groups on Each Category

Group	Categories 2 + 12	Categories 2 + 13	Categories 4 + 14	Categories 5 + 15	Categories 6 + 16	Categories 7 + 17	Total Student Initiation 9 + 19	Total Teacher Talk Contribution 2 - 17
High Expectancy Pupils	- X=2.5 31.9%	- X=2.3 28.5%	- X= 10.6 32.8%	- X=0	- X=0.83 38.4%	- X=1.6 18.5%	- X=3 29%	- X=18 30%
Medium Expectancy pupils	- X=5 42.5%	- X=6.25 51.02%	- X=18.5 38%	- X=0	- X=1 30.7%	- X=5.2 40.8%	- X=6.5 41.9%	- 40.1%
Low Expectancy Pupils	- X=2.4 25.5%	- X=2 20.4%	- X=11.4 29.2%	- X=0.2 100%	- X=0.9 30.7%	- X=4.6 40.7%	- X=3.6 29%	- X=21.4 29.8%

Table 23 provides further insight into the nature of teacher-pupil interaction in academy. The data shows a clear pattern with regard to frequency of interaction. Children for whom medium performance expectation were held experiences more total contact with the teacher than did those who were considered to have more or less performance potential (see total teacher talk contribution, categories 2 to 17). The above trend has been shown for each category. Therefore, medium expectancy pupils received more praises, acceptance of their ideas, questions, directions, and negative reinforcements. In addition, they initiated more contacts with the teacher by making more comments or asking more questions. They also contacted the teacher more often for both instructional assistance and to discuss personal matters.

On the other hand, there is little evidence that the teacher behaves differently toward high expectancy pupils than to lows. The data indicate slight difference between highs and lows, however, those differences appear to be insignificant. Neither high nor low expectancy children enjoyed a significant advantage in frequency of interaction with the teacher.

The only exception to the above tendency was negative reinforcements given by the teacher; low expectancy students received more negative reinforcements than highs. One explanation might be that low expectancy students gave incorrect answers more frequently than highs. Since the

researcher did not code the quality of students' responses its impossible to get conclusive results regarding negative reinforcements.

In summary, the data for this classroom show that medium expectancy children were involved in more interaction with the teacher than were children for whom high or low expectation were held. Further, the difference was minimal between high and low expectancy students regarding categories 2 to 16, but more marked with respect to categories 7 and 17.

In comparison with teacher pupil interaction in the gym it appears that the communication of performance expectation cannot be inferred. Unlike the situation in the gym in which the teacher tended to interact more often with high academic expectancy students, it seems that in academics the teacher recognized the tendency for highs to be more active in the classroom and therefore he attempted with some success to equalize the amount of attention received by children in the high and low expectancy groups. Further, high and low groups demonstrated similar activity in seeking out the teacher and initiating interaction with him (see categories 9 and 19).

In summary, then, no systematic differences were found in teacher behavior in academy towards high and low ranked children.

2. The Study's Correlations

In this phase of the study the researcher computed several correlations. The findings related to each of these correlations are reported and discussed in turn. The reader is cautioned that, because of the small number of subjects in the study, only trends could be discussed.

Correlation 1:

The pupils in this study were asked to rank order their classmates, including themselves, according to how well they were doing in games activities, and how well they were doing in gymnastics. The correlation between these two lists in 0.89 which is high and positive correlation. Thus, it seems that those students who scored high in games received high scores in gymnastics and vise versa.

Two possibilities might explain the above results. First, those students who were good in games were indeed good in gymnastics. Another possibility might be that the children could not discriminate between their friends' performances in different sport settings.

Correlation 2:

A high positive correlation of 0.88 has been found between the way the teacher ranked his student on a sport

expectancy list and the way the children ranked their classmates in a games list. Further, a similar positive correlation of 0.74 has been found between teacher's sport expectancy list and children's gymnastic list.

Thus, the data suggest an interesting phenomenon; those students for whom the teacher had high sport expectation were ranked high on students' lists and vise versa. It is clear then that the teacher's and the students' perceptions were almost perfectly identical to each other regarding students' sport abilities.

Correlation 3:

A correlation between teacher's sport expectation and teacher's academic expectation has been computed. A negative moderate correlation of 0.29 has been found. This result indicates that there was a tendency by the teacher to give better sport scores to those students whom he ranked low in academic.

A possible explanation for such correlation might be that indeed, those students who were low academic expectancy were good athletes. However, it might be that the teacher tried to compensate low academic expectancy students by giving them better scores in physical education.

Correlation 4:

A correlation between total teacher interaction in academy (Group A variables) and total teacher interaction in the gym has been computed. A moderately high correlation of 0.45 has been found. It seems then, that the teacher tended to be consistent with regard to interaction. Those students with whom he had more interactions in the classroom enjoyed more interactions in the gym and vise versa. The above correlation could serve as in additional support to the study's hypotheses. It indicates that the teacher tended to interact with his student in the gymnasium the same way he interacted with them in the classroom. Therefore, it might be that he provided unequal opportunity for some students to excel in physical education studies.

In summary then, correlation data for this classroom indicate the following trends; first, the students tended to rank their classmates' games abilities the same way they ranked their gymnastics' abilities; second, teacher's and student's perceptions of students sport abilities were similar to each other; third, the teacher tended to give better sport scores to those students for whom he held low academic expectation, and finally, it has been found that the teacher interacted with his students in the gym the same way he interacted with them in the classroom.

Part 4

D. Sex Role Expectations

The fourth phase of the study involved examination of relationship between students' gender and differential teacher behavior. It was assumed that sex, race and social class affect teacher's perceptions of his students as either high or low expectancy students.

Owing to the small scope of the sample the researcher was not able to test whether students race influenced teacher's perceptions. In addition, all the subjects in this study had a similar social background. Thus it was impossible to study teacher's social class expectations. The researcher concentrated therefore, on the relationship between student's gender and differential teacher behavior.

Table 24 reports teacher's academic and sport ratings for boys and for girls.

Table 24
Teacher's Rating by Gender

	ACADEMY							PHYSICAL EDUCATION						
SUBJECT	1	2	3	4	5	6	7	1	2	3	4	5	6	7
BOYS														
2					X									X
6				X										X
7							X							X
8							X					X		
9				X										X
10						X								X
11					X					X				
13					X								X	
GIRLS														
1				X								X		
3							X				X			
4				X								X		
5			X									X		
12							X			X	X			
14							X				X			
15							X							

Table 24 suggests minimal differential academic scores between boys and girls (an average of 5.5 for girls compared with 5.3 for boys), however, it reveals teacher's tendency to give better sport scores to boys than to girls (an average of 5.3 for boys compared with 4.2 for girls). Thus, it seems that the teacher did have different expectations for boys and girls in physical education. The question then was: did the teacher interact differently with boys, for whom he held high performance expectation than with girls, for whom he held low performance expectations? And if so, what was the nature of such differential expectations? Table 25 describes teacher-pupil interaction across the three groups of variables (see Table 14 for the groups).

Table 25 summarizes the number of interactions that each subject had in Group A variables (categories 2 to 17), Group B variables (categories 8 and 18) and Group C variables (categories 9 and 19). A more detailed description of Group A variables is presented in Table 26. This table describes each category in Group A variables. For example, category "1S122" is interaction in sport for categories 2 and 12, which are verbal and nonverbal praises given by the teacher.

Table 25
Teacher-Pupil Interaction by Gender
in Physical Education Setting

	SPORT CATEGORIES 2 to 17		SPORT CATEGORIES 8 & 18		SPORT CATEGORIES 9 & 19	
	SEX		SEX		SEX	
NAME	BOY	GIRL	BOY	GIRL	BOY	GIRL
1	.	2.0	.	1.0	.	1.0
2	9.0	.		.		.
3	.	18.0	.	6.0	.	4.0
4	.	13.0	.	3.0	.	
5	.	13.0	.	1.0	.	7.0
6	11.0	.		.	2.0	.
7	14.0	.	1.0	.	7.0	.
8	12.0	.		.	1.0	.
9	14.0	.		.	2.0	.
10	23.0	.	1.0	.	3.0	.
11	21.0	.		.	3.0	.
12	.	7.0	.	1.0	.	2.0
13	9.0	.	1.0	.	2.0	.
14	.	11.0	.		.	1.0
15	.	4.0	.		.	1.0

Table 26
Interaction by Gender for Group A Variables

	IS122		IS133		IS144		IS155		IS166	IS177		IS166	IS177	
	SEX		SEX		SEX		SEX		SEX	SEX		SEX	SEX	
NAME	boy	girl	boy	girl	boy	girl	boy	girl	boy	boy	girl	girl	boy	girl
1	.	.	.	1.0	.	.	.	.	.	.	1.0	.	.	1.0
2	1.0	.	.	.	1.0	.	.	.	6.0	1.0	.	.	1.0	.
3	.	1.0	.	3.0	.	3.0	.	.	.	.	.	11.0	.	.
4	.	.	.	2.0	.	3.0	.	.	.	.	.	8.0	.	.
5	.	1.0	.	3.0	.	.	.	.	.	.	5.0	4.0	.	5.0
6	.	.	3.0	.	.	.	2.0	.	7.0	1.0	.	.	1.0	.
7	.	.	5.0	.	.	.	.	.	7.0	5.0	.	.	5.0	.
8	4.0	.	.	.	.	.	.	.	3.0	3.0	.	.	3.0	.
9	.	.	1.0	.	1.0	.	.	.	10.0	3.0	.	.	3.0	.
10	5.0	.	2.0	.	1.0	.	.	.	12.0	13.0	.	.	13.0	.
11	.	.	1.0	.	1.0	.	.	.	6.0	.	.	1.0	.	.
12	.	4.0	.	2.0	.	.	.	.	.	1.0	.	.	1.0	.
13	.	.	.	.	.	.	.	.	8.0	.	.	3.0	.	.
14	.	2.0	.	5.0	.	.	.	1.0	.	.	.	3.0	.	.
15	.	.	.	1.0	.	.	.	.	.	.	.	.	.	.

In order to test hypothesis 4 and find out whether the researcher interacted differently with boys than with girls, the researcher calculated means and percentages for boys and girls. This process involved two steps.

1. Means and percentages for boys and for girls were calculated across the three groups of variables.
2. Means and percentages for each category in Group A variables were calculated.

Table 27 reports means and percentages of boys and girls in Group A, B and C variables.

The data in Table 27 shows a clear pattern with regard to Group A variables. Boys experienced more total contacts with the teacher than girls did. On the other hand, total student talk contribution, which are categories 8 to 18 indicate that the girls answered more questions than the boys (an average of 0.37 for boys compared with 1.7 for girls). There was a slight difference between boys and girls with regard to Group C variables which is total student initiation. Boys tended to initiate more contacts with the teacher than girls did.

In order to gain a better perspective of interaction pattern involving boys and girls it is necessary to analyze separately each category. Table 28 provides further insight into the nature of teacher-pupil interaction in the gym.

Table 27
Means and Percentages for Boys and Girls on Three Group Variables

GENDER	GROUP A CATEGORIES 2-7 12-17	GROUP B CATEGORIES 8-8' 18-18'	GROUP C CATEGORIES 9 AND 19
BOYS	X = 14.1 62.5%	X = 0.37 20%	X = 2.5 55.5%
GIRLS	X = 9.7 37.5% (42.8%*)	X = 1.7 80% (91.4%*)	X = 2.3 44.5% (50.8%*)

*NOTE: There were 7 girls and 8 boys in the sample, therefore, an adjustment has been made for girls' interaction percentages (original % X 8/7).

Table 28
Means and Percentages for Boys and Girls on Each Cateogry

GROUP	2 + 2	3 + 13	4 + 14	5 + 15	6 + 16	7 + 17
BOYS	X=1.25 55.5%	X = 1.5 41.3%	X=0.37 33.3%	X=0.25 66.6%	X = 7.3 66.2%	X = 3.3 81.9%
GIRLS	X=1.14 44.5%	X=2.4 58.7%	X=0.85 66.7%	X=0.14 33.4%	X=4.2 33.8%	X=0.8 16.1%

Table 28 indicates the differences between boys and girls for each category in Group A variables. It seems that the teacher tended to give more directive praises and criticism to boys than to girls (see categories 2, 6, and 7). However, he asked the girls more questions and accepted their ideas more often compared with the boys.

Those tendencies should be viewed with caution since the data reveals that boys sought out the teacher more

frequently than the girls (see Group C variables). Therefore, the greater contacts with boys derived partially from the fact that boys initiated more contacts with the teacher compared with the girls. In addition, boys received more negative reinforcement, since they misbehaved more often than girls.

In summary then, the findings of this phase of the study indicate that the teacher generally interacted with the boys more often than with girls. For example, he reinforced boys negatively and positively more frequently and he tended to give them more directions than he gave to girls.

However, these tendencies should be interpreted with caution due to three reasons: (1) owing to the small scope of the sample no significant test has been completed, therefore, it might be that the above results were chance occurrences (2) the data reveal that the boys initiated more contacts with the teacher than the girls, and (3) boys received more negative reinforcements since they misbehaved more often than the girls. The latter findings have been reported in other research examining relationships between teacher expectation and the nature of interaction with boys and girls (Brophy and Good 1974).

In addition, it might be that the teacher was aware of the fact that boys tended to interact with him more often therefore, he tried to compensate the girls by asking them more questions and accepting their ideas.

Finally, the data indicates differential teacher sport expectations for boys than for girls; however, there is little evidence that the teacher behaves differentially toward them on the basis of these expectations.

Summary

In this chapter, the findings relating to the two purposes of the study were reported and discussed. There were four major parts in the chapter. The first part was an attempt to describe the subjects' world view through the actions and words which were observed by the researcher. This qualitative approach was used to generate rich and subjective data which quantitative methods cannot be expected to do.

The second part investigated relationship between differential teacher academic expectations and the nature of teacher-pupil interaction in the gymnasium. Briefly, the analysis revealed that high expectancy students experienced more interaction with the teacher. However, only two frequency measures are susceptible to the expectation effect possibility. These are positive and negative reinforcements given by the teacher to each expectancy group.

The third part of the chapter discussed more findings which gave the reader a better understanding of the quality of interactions. Teacher-pupil interactions in the academy

were investigated and various correlations have been applied.

The last part deals with the second purpose of the study. Relationships between students gender and differential teacher behavior were investigated. The data indicated differential teacher sport expectation for boys than for girls; however, there was little evidence that the teacher behaved differentially toward them.

Chapter 6 will summarize the study and present conclusions and recommendations based on the findings.

Chapter 6

Summary Conclusions and Recommendations

This chapter comprises three sections. The first section provides a summary of the investigation; the second section presents conclusions which have been drawn from the findings; the final section makes recommendations for future research.

A. Summary

Rosenthal's controversial experiment (1968) stimulated considerable research in the area of teacher expectations. Since 1968, a variety of paradigms have been used to investigate different aspects of the self-fulfilling prophecy hypothesis. Although the findings of this body of research are mixed, the evidence appears to be in favor of the existence of expectation effects. A considerable number of studies have reported that teachers interact more frequently and more positively with children for whom they hold high performance expectations. However, recent studies also indicate that such behavior is not universal and that teachers differ considerably in extent and nature of susceptibility to expectation effects.

The majority of research in this area has been generated from studies related to classroom interaction. Very little of this research has been conducted in the

physical education setting. A recent study by Martinek, however, provides evidence that expectations do exist and operate in the gymnasium. Martinek (1981) presents a model which illustrates how expectations are formed, mediate dyadic interaction between the teachers and students, and can ultimately effect student growth during the instructional process. He argues that teachers form expectations of their students from perceptions related to either teacher or student characteristics or interactions of both. Based on the above model, the current study attempts to investigate a different source of teacher expectations which has not been investigated before. More specifically, it is a well known phenomenon that in many elementary schools the same teacher teaches academic subjects as well as physical education. Therefore, it might be that these teachers form expectations of their students from perceptions gained through the interaction in the classroom. Ultimately, those expectations affect the quantity and quality of interactions between teachers and student in the gymnasium.

The Problem

Research investigating aspects of teacher expectations in the physical education setting has not been extensive. In addition, no studies have attempted to investigate the

relationship between teachers' expectations in the classroom and their behavior in the gymnasium.

The purpose of the present study is two-fold. The major purpose is to analyze the relationship between the way a teacher perceives his students in the academy and the way he reinforces the students in physical education classes. The second purpose is to understand the effect of student gender on the way a teacher perceives his students as either low or high expectancy.

Methodology

The following procedures were followed in the conduct of the study:

1. A sample of one teacher who teaches both academic subjects as well as physical education was identified for use in the study. (The teacher volunteered to participate in the study.)
2. The researcher practiced the use of video-camera and the Dyadic Adaptation tool of CAFIAS.
3. Following the researcher's training, two physical education sessions were video-taped in a row.
4. A familiarization period of one week was spent in the classroom. Following this period in the classroom and in the gymnasium, teacher-pupil

interaction data were collected at selected times over a five week period.

5. Consistently, with the collection of interaction data, interviews were conducted with each student and with the teacher. The teacher was requested to rank students in order of expected achievement.

Analysis

The study required four stages of analysis. At the first stage, a qualitative approach was used to describe the subjects' world view through the actions and words which were observed by the researcher. The second stage, relationships between teacher expectations and teacher-pupil interactions were investigated in the gymnasium. Measures of teacher-pupil interaction were 20 variables (See CAFIAS categories) derived from four video-taped physical education lessons. Teacher expectations were determined by teacher ratings of pupils. At the third stage, some findings were discussed. The relationships between teacher expectations and teacher-pupil interaction were examined in five academic lessons. In addition, the data were analyzed using correlation. At the last stage of the analysis, relationships between student gender and differential teacher behavior were studied.

B. Conclusions

This research deals with a case study of student-teacher interaction in both the academy and gymnasium. The sample in this study was small and not random. The findings of the study reflect trends that do not necessarily imply statistical significance. For these reasons, the findings must be interpreted cautiously and no generalization about the teacher population from which the sample was drawn can be made. The following conclusions, which are based on findings presented in chapter 5, should be viewed in light of these qualifications.

1. The combination of quantitative and qualitative approach appears to be an appropriate method for this research. The qualitative approach provides an adequate basis for quantitative methods.
2. High academic expectancy students experience more interactions with the teacher in the gymnasium. However, it is possible that high expectancy students create an advantage for themselves by initiating contact with the teacher. This finding is consistent with findings reported by Brophy and Good (1974).
3. Two of the frequency measures are susceptible to an expectation effect. These are positive and negative reinforcements. In the present study most of the positive reinforcements were addressed to high expectancy students while very few were

given to low expectancy students. This finding is consistent with findings reported in several studies, such as, Martinek and Johnson (1979), Cooper and Barron (1977), and Rejeski, Darracott and Hutslar (1979).

4. The control variable, teacher expectations in sport, helps support the assumption about the relationship between differential teacher behaviors and expectations. It has been found that there is no significant difference in the amount of negative and positive reinforcements given to high academic expectancy students, regardless of their physical education abilities. A similar trend has been found with regard to low academic expectancy.

5. No systematic differences were found regarding teacher behavior in the classroom toward high and low ranked children. Unlike the situation in the gymnasium, where the teacher tended to interact more often with high academic expectancy students, it seems that in the classroom he attempted to equalize the amount of attention given to high and low expectancy students.

6. a) The students tended to rank their classmates' games abilities in the same way they ranked their gymnastics' abilities.

   b) Teacher's and students' perceptions of

students' sport abilities were similar to each other.

c) The teacher tended to interact with his students in the gymnasium in the same way he interacted with them in the classroom.

d) The data indicates differential teacher sport expectations for boys and for girls. Boys were expected to do much better in sports than girls. However, there is little evidence that the teacher behaved differently toward them on the basis of these expectations. This finding is consistent with that of Crowe (1977) and with Brophy and Everston's (1981).

C. Recommendations

There is considerable evidence of a relationship between differential teacher behaviors and expectations for individual pupil performance. Knowledge concerning any aspects of this relationship, however, is incomplete. Further, expectation research in physical education is at the neophyte stage and has only began to surface as a viable pursuit of inquiry. There is a need for more research in physical education. Recommendations projected from the present study are discussed in this section.

1. There is a need to replicate this study with larger and more representative sample. It is important to study both more students and more teachers. Only in this way can we increase the generalization of these studies.
2. Further research examining the ways teachers communicate performance expectations to children is recommended. The coding system which has been used in this study did not capture all aspects of teacher behavior through which expectations might be communicated. The tone of voice used in asking a question and the amount of time the teacher was prepared to wait for a child's answer are examples. It would be useful to combine ethnographic procedure with observation instruments to obtain a more complete description of teacher behavior which has the potential of communicating performance expectations.
3. There is a need to increase the intercoder reliability of this kind of study by having two or three coders who should collect and analyze the data.
4. If further research supports the current finding, that a general teacher transfers his expectations from the academy to the gymnasium, then, the possibility of having a specialist teacher should be given more attention.

5. Differential teacher behavior is influenced by factors other than expectations for pupil performance. It seems that the prediction of such behavior would be enhanced if performance expectations were studied in combination with other factors known or suspected to influence teacher behavior. Some of these factors might include pupil sex, pupil socio-economic status, pupil attitude toward classroom activity, teacher personality, and teacher motives. Research using multi-variate techniques is recommended.

6. The final recommendation relates to the last stages of the pygmalion phenomenon (See Brophy and Good 1970). To date, there has been little research designed to examine the effect of differential teacher behavior on pupil attainment. Research in this area is needed. It is recommended that large sample studies be undertaken to investigate the effect of differential teacher behavior on such product measures as academic achievement, self-concept, and attitudes toward school.

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APPENDICES

APPENDIX A

The letter sent to school to outline the general purpose of the project.

COOPERATIVE ACTIVITIES PROGRAM: RESEARCH APPLICATION FORM 142

Field Services
Faculty of Education
University of Alberta

341 Education South
432-3659
T6G 2G5

1. **Instructions:**

   a) This application form is to be used for research projects which constitute a major undertaking leading to a Master's thesis or a Ph.D. dissertation, and studies of similar magnitude, or lesser research projects which involve participation of human subjects.

   b) All proposed research projects involving human participants must be reviewed by the ethics committee established in each department, to ensure that ethical guidelines are followed in the conduct of the study. Once clearance is granted, a statement to this effect, signed by the chairperson of the ethics committee, must accompany this research application.

2. **Organization to be Involved**

   Edmonton Public School System ☐ County of Strathcona ☐
   Edmonton Catholic School System ☐ St. Albert Protestant/Separate School System ☐
   N.A.I.T. ☐

3. **Requestor** (University staff member) Date Sept 30/86

   Name (include title) H A Scott Faculty P.Ed + Rec.
   Position Professor Department P.E.S.S.
   Address Dept of Phys.Ed. + Sport Studies Telephone 432-2831

   Is this request being made on behalf of a graduate student ☒, undergraduate student ☐

   If so, indicate: RESHEF, Nurit (Name) 439-4885 (Phone Number)

   10630-83 Avenue #10 EDMONTON, Alberta T6E 2E2
   (Campus or Home Address) (Postal Code)

   Ph.D. student ☐ Master's student ☒ Other: ____

4. **Description of Research Project** - include title, objectives, procedure, evaluation, techniques, ethical considerations, etc.

   PURPOSE: The purpose of this study is to analyze the interactions between the students and the teacher in the physical education setting.

PROCEDURE:

(1) The researcher will video tape the class, which is taught by its teacher. The researcher will decide with the teacher how many sessions will be taped.
(2) The teacher will be asked to rate the students according to their academic abilities on a scale ranging from 1 (very low) to 10 (very high).
(3) The teacher will be asked to rate the students on a physical education ability scale ranging from 1 to 10.
(4) The researcher will discuss the video taped lessons with the teacher in order to better understand what happened during those lessons.
(5) The researcher will ask for knowledge of the children' academic and demographic from the school.

ETHICAL CONSIDERATION:

(1) Participation in this study is entirely voluntary.
(2) Subjects are free to withdraw at any time.
(3) The parents will be informed about the study.
(4) The results of the research will be provided to the teacher after the researcher completes the study.
(5) Anonymity is guaranteed. Personal information and the identity of subject will be confidential.

5. Anticipated value to cooperating organization:

The study might have important implications for educational practices. The researcher will present the findings to the teacher and will discuss the implications with the teacher.

6. Suggested personnel, schools and times:

SCHOOL:

PRINCIPAL:

TEACHER:

TIME: October 8th to November 8th

For Office Use Only:

Approved by _____, Field Services Date _____

Approved by _____, Central Office Date _____

Subject to the following conditions:

(a) A report of the results of findings of this project is required by the cooperating school system (check one) yes ☐ no ☐

(b) Other

APPENDIX B

The letter sent to parents to
confirm their child's participation

October 8, 1986

Dear Parent:

During the month of October, we will have a visitor, Nurit Reshef, from the Faculty of Physical Education of the University of Alberta. Nurit Reshef will be in the classroom and gymnasium for frequent visits. Her work with us will involve some video taping of gymnasium activities and classroom observations.

The results of the study will be shared with the school and we hope to benefit from her experience in physical education and research.

The School Board would like you to be aware of our work with Nurit and requires you signing below.

I consent that my child _____ will participate in this research.

_____

Signature

APPENDIX C

The Categories of CAFIAS

THE CATEGORIES OF CAFIAS*

Categories	2 - 17	Teacher Behaviors
Categories	8 - 19	Student Behaviors
Category	10	Confusion
Category	20	Silence

Relevant Behaviors

Cat.	Verbal		Nonverbal
2-12	2 Praises, commends, jokes, encourages	Face:	Smiles, nods with smile, (energetic) winks, laughs
		Posture:	Claps hands, pats on shoulder, places hand on head of student, wrings student's hand, embraces joyfully, laughs to encourage, catches in gymnastics, helps child over obstacles.
3-13	3 Accepts, clarifies, uses and developes suggestions and feelings by the learner.	Face:	Nods without smiling, tilts head in empathetic reflection, sighs empathetically.
		Posture:	Shakes hands, embraces sympathetically, places hand on shoulder, puts arm around shoulder or waist, catches an implement thrown by student, accepts facilitation from students, takes part in game with students.

	4		
4-14	Asks questions requiring student answer	Face:	Wrinkles brow, opens mouth, turns head with quizzical look.
		Posture:	Places hand in air, waves finger to and fro anticipating answer, stares awaiting answer, scratches head, cups hand to ear, stands still half-turned toward person, awaits answer.
	5		
5-15	Gives facts, opinions, expresses ideas or asks rhetorical questions	Face:	Whispers words inaudibly, sings or whistles.
		Posture:	Gesticulates, draws, writes, demonstrates activities, paints
	6		
6-16	Gives directions or orders	Face:	Points with head, beckons with head, yells directions to.
		Posture:	Points finger, blows whistle, holds body erect while barking commands, pushes a child through a movement, pushes a child in a given direction.
	7		
7-17	Criticizes, expresses anger or extreme self-reference	Face:	Grimaces, growls frowns, drops head, throws head back in derisive laughter, rolls eyes, bites, spits butts with head, shakes head.
		Posture:	Hits, pushes away, pinches, grapples with, pushes hands at student, drops hands in disgust, bangs table, damages equipment, throws things down.

	8		
8-18	Student response that is entirely predictable, such as obedience to orders and responses not requiring thinking beyond the comprehension phase or knowledge.	Face: Posture:	Poker-face response, nods, shakes, gives small grunts, quick smile. Moves mechanically to questions or directions, responds to any action with minimal nervous activity, robot-like.
	Eine (8`)		Eineteen (18`)
eine (8`) and einteen (18`)	Predictable student responses that require some measure of evaluation and synthesis from the student but must remain within the province of predictability. The initial behavior was in response to teacher initiation.	Face: Posture:	A "what's more, sir" look, eyes sparkling Adds movements to those given or expected, tries to show some arrangement that requires additional thinking, e.g., works on gymnastic routine, dribbles basketball, all game playing.
	9		
9-19	Pupil-initiated talk that is purely the result of their own initiative and which could not be predicted.	Face: Posture:	Makes interrupting sounds, gasps, sighs. Puts hands up to ask questions, gets up and walks around without provocation, begins creative movement education, makes up own games, makes up own movements, shows initiative in supportive movement, introduces new movements into games not predictable in the rules of the games.
	10		
10-20	Stands for confusion chaos, disorder, noise, much noise.	Face:	Silence, children sitting doing nothing noiselessly awaiting teacher just prior to teacher entry, etc.

APPENDIX D

Teacher Interview Protocols

Interview

1. Please, tell me about yourself. How many years have you taught? Where have you taught? Do you like teaching? Do you like this school? and so on.
2. What do you think about the four physical education lessons you have taught? Were you satisfied? Did anything special happen?
3. By placing an X under the appropriate number, indicate on the following pages how you expect each child in your class to perform on physical skills and in academic subjects during the year. In rating your children try to be as truthful as possible. Remember: rate each student according to your expected level of achievement for that particular student. Please explain why you give this particular rating.
4. What do you think about the physical abilities of boys and girls, are they different from each other. If yes, how?
5. You have mentioned that subject 1 had cultural problems, would you tell me a little bit more about her?
6. How do you deal with low academic achievement in your class? Do you spend a lot of time with them? Do you have other ways of dealing with them?

7. Is there any connection between children's academic achievement and their physical education abilities?

Teacher's Rating in Physical Education

	Very Low						Very High
Subject	1	2	3	4	5	6	7
1					X		
2							X
3		X					
4					X		
5					X		
6							X
7							X
8					X		
9							X
10							X
11			X				
12			X				
13						X	
14				X			
15				X			

Teacher's Rating in the Academy

	Very Low						Very High
Subject	1	2	3	4	5	6	7
1					X		
2					X		
3							X
4				X			
5			X				
6				X			
7							X
8							X
9				X			
10						X	
11					X		
12							X
13					X		
14							X
15							X

APPENDIX E

Student's Interview Protocol

Questionnaire

1. What is your name?
2. Where were you born?
3. How many years have you lived in Canada?
4. Where was your father born?
5. Where was you mother born?
6. What is your father's job?
7. Does you mother work outside of home?
   If yes, what is her job?
8. Where do you live?
9. How many brothers and sisters do you have?
10. Do you like Physical Education sessions?
11. Have you ever been a captain?
12. Please tell me in order who is the best student in your class in games activities? Who is next? Rank all your friends including yourself.
13. Do the same thing for gymnastic activities.